Neuropsychiatric Supplement

Contributed by

The American College

of Neuropsychiatrists

Volume 1 December 1947

Number 1 Pages 1 to 32

Journal A.O.A.
Vol. 47, No. 4

NEUROPSYCHIATRIC SUPPLEMENT*

The American College of Neuropsychiatry

Editorial Office, 139 N. Clark St., Chicago 2, Ill.
Address all communications to the Chicago Office
Copyright 1947 by the American Osteopathic Ass'n

THOMAS J. MEYERS, Pasadena, Calif.....Editor
MISS MAY M. BROWN, Los Angeles....Librarian and Assistant Editor

OFFICERS

PRESIDENT.....H. D. McClure, Kirksville, Mo.
VICE PRESIDENT.....Edward S. Merrill, Los Angeles
SECRETARY-TREASURER.....Fred M. Still, Macon, Mo.

Volume 1 **December, 1947** **Number 1**

CONTENTS

Insulin Shock Therapy in Schizophrenia. Floyd E. Dunn, D.O., Macon, Mo. 219

Electroshock in Clinical Practice. C. W. Norton, D.O., Glendale, Calif. ... 235

Acute Closed Brain Injuries. R. J. Chapman, D.O., F.A.C.N., Burbank, Calif. 237

The Training of Osteopathic Psychiatrists Today. Thomas J. Meyers, M.A., D.O., F.A.C.N., Pasadena, Calif. 241

The Electrical Activity of the Brain. From the Eighth Street Clinic, Los Angeles 242

A Simple Screening Device for Aid in Detection of Brain Damage. Anthony Di Nolfo, D.O., Tulsa, Okla. 244

Abstract of Papers Presented at the Ohio State Association of Osteopathic Physicians and Surgeons, Midwinter Conference, February 1946. Abstracted by Thomas J. Meyers, M.A., D.O., F.A.C.N., Pasadena, Calif. 247

MEMBERS OF THE AMERICAN COLLEGE OF NEUROPSYCHIATRISTS

FELLOWS

K. Grosvenor Bailey
J. L. Bolenbaugh
R. J. Chapman
Marion Dick
J. L. Fuller
L. Van H. Gerdine
Grover N. Gillum
Herman Hoyle
H. D. McClure
Edward S. Merrill
Thomas J. Meyers
Samuel A. Reese
J. Francis Smith
Fred M. Still
R. H. Still
K. R. M. Thompson
Charlotte Weaver

ASSOCIATES

Karl Albaeck
John C. Button, Jr.
Robert B. Cross
Philip B. Davis
Anthony Di Nolfo
W. Gordon Douglas
Floyd E. Dunn
I. J. Dunn
Bernice Harker
Cecil Harris
A. L. Hovey
Don C. Littlefield
Ralph I. McRae
C. W. Norton
Sherwood J. Nye
D. E. Pinder

*This supplement represents the current issue of The Bulletin of the American College of Neuropsychiatrists.

Neuropsychiatry
Vol. 1, No. 1, December, 1947

Insulin Shock Therapy in Schizophrenia*†

FLOYD E. DUNN, D.O.
Macon, Mo.

The use of shock therapy in treatment of the various psychotic states is not new. In an earlier, unpublished thesis,[1] we had the pleasure of tracing the treatment of mental diseases from the early medieval times to the dawn of modern psychiatry in the twentieth century. Many and varied were the methods used, as Jessner and Ryan[2] put it, "to bedevil the psychotic state into a state of normalcy."

Among the earliest methods of shock therapy was the procedure of dropping the unsuspecting victim through a trapdoor into a vat of icy water. Reports of the success of this method are rather meager. All of us are familiar with such methods as fasting, needle showers, alternate hot and cold baths, etc., which are described in the texts on mental diseases published in the nineteenth century.

Other forewarnings of modern shock therapy are recorded. The shock produced by disease or trauma was long ago observed sometimes to produce improvement in psychotic patients. High concentrations of CO^2 produced temporary improvement in catatonic stupors. Klaesi,[3] during the third decade of the present century developed a method of prolonged sleep therapy. So medical science was not unprepared to receive favorably the first reports of experiments with hypoglycemic shock in the psychoses.

When Manfred Sakel,[4] after a wide experience in the use of insulin in drug addiction, began to use hypoglycemic shock in the treatment of psychotic reactions, a new era dawned in psychiatric therapeutics. Insulin had previously been used in cases of delirium tremens and catatonic excitement because of its known quieting effect upon these agitated conditions. Steck[5] had even used insulin in various psychotic states. Insulin had also been used to arouse the appetites of patients who refused to eat, and psychiatrists had reported that this use of insulin not only produced a desire for food, but it also produced improvement in the psychological status of the patients treated. These workers, however, were fundamentally interested in removing a complication which distressed the hospital staffs and endangered the life of the patient, and they had no expectation of altering the psychotic reaction itself. The dosage used was adequate for the purpose, and shock symptoms were neither desired nor achieved.

As early as 1928, Sakel[6] began using sufficiently large doses of insulin to induce hypoglycemic states and found that severe hypoglycemic shocks occurred. The favorable changes in the mental status and the personality alterations which resulted from these severe hypoglycemic shocks convinced Sakel that it would be sound, even if empirical, therapeutics "to use severe hypoglycemic states as an etiologically nonspecific (though clinically specific) treatment for psychoses."

This was a radical departure from the previous methods of using insulin. The insulin was being utilized upon the assumption that the resulting hypoglycemic shock would alter the psychotic reaction. Such a step into unexplored therapeutic realms must have required not only a supreme self-confidence, but the courage of a Columbus.

Frostig[7] remarks, "It is greatly to the credit of Sakel to have clearly understood the meaning of psychic improvements which accidentally occurred while he was treating the drug addicts with insulin, and in spite of many difficulties, to have courageously persisted in his experiments and the application of his findings to the treatment of schizophrenia."

Sakel[6] first introduced hypoglycemic shock produced by insulin as a method of treatment in Vienna in 1933, and a year later he began publishing his method and results. In 1935, Max Muller attempted a critical appraisal of the new method, working with a large number of selected cases at Munsingen, Switzerland, under the supervision of K. T. Dussik, Sakel's first assistant. From Munsingen there was initiated an organization and correlation of the results and experiences of the various workers in different European countries.

This early organization culminated in the eighty-ninth meeting of the Swiss Psychiatric Association at Munsingen, Berne, which was devoted to the treatment of schizophrenic psychoses by insulin, metrazol, and sleep treatment. The meeting marks the first great milestone in the progress of shock therapy, and its reports (published in the supplement to Volume 94 of the American Journal of Psychiatry)[8] comprise the first comprehensive study and summary of the new therapy.

These early reports by men from numerous psychiatric institutions in many countries were almost unanimously enthusiastic regarding their successful use of insulin for the treatment of schizophrenic reactions. Only a few "voices in the wilderness" were raised in words of caution amid the general exuberant spirit which prevailed. Psychiatry had found a panacea! Schizophrenia, the mystery of the ages, was a mystery no longer! Even the remarks of Klaesi[3] that "An absolute devotion to any one school or method is the mark of ignorance or of mediocrity" went unheeded in the general clamor of enthusiasm. Only time, with its opportunities for sober second thought, further investigation, and follow-up of treated cases, was going to change this exuberance to a proper scientific attitude.

Since these early reports, the method has been used on many thousands of patients with varied results, and the initial enthusiasm has given way to a critical realistic evaluation of effects, advantages, and disadvantages of this therapeutic procedure. In the course of this work a tremendous amount of literature has been published.

Enthusiastic early reports of 70 to 80 per cent recovery in cases of less than 6 months' duration have been replaced by more critical appraisals. Bond and Rivers,[9] for example, reported in 1944 a follow-up of insulin treated patients indicating that only 41 per cent maintained their status. Workers everywhere found that the immediate improvement effected by insulin therapy was frequently of short duration. Reports of comparison between insulin treated and nontreated

*Presented before the General Sessions, Fifty-First Annual Session of the American Osteopathic Association, Chicago, July 22, 1947.

†Submitted as partial fulfillment of the requirements for Senior Membership in the American College of Neuropsychiatrists.

cases began to appear, some of them challenging the value of hypoglycemic shock.

In spite of the fact that time has proved that insulin treatment is not a panacea in schizophrenic reactions, the great majority of workers are agreed that it is a valuable therapeutic method. Although it is recognized everywhere as an empirical process, and no one has been able to advance acceptable reasons for the favorable results obtained, it is nonetheless destined to remain with us until science evolves better methods of treatment.

I have therefore attempted a monograph which in Part I adequately discusses treatment by insulin shock (with proper review of the literature) and in Part II presents a report of insulin treated cases from the files of Still-Hildreth Osteopathic Sanatorium, Macon, Mo., and compares them with results in 1000 cases not treated with insulin as reported in 1933 by another staff member.[10]

PART I—INSULIN THERAPY

TECHNIC OF TREATMENT

I. *Preparation.*—It is highly advisable to discuss insulin treatment with the patient's nearest or most intelligent relatives before therapy is begun. A general outline of the procedure to be followed and the results expected should be included in this discussion, and possible risks involved should be emphasized. We make it a practice to secure a written request for treatment from a responsible relative before we proceed with this type of therapy. We find it satisfactory to use for this purpose the printed form reproduced below:

> This is to request the use of electroconvulsive treatment in the case of.....
> and further certifies that the request is being made with the full knowledge that the treatment is administered with some dangers to the patient. It is further understood that those administering the treatment are not responsible for unpredictable developments.
>
> .....

It is equally important to discuss the proposed treatment with the patient. The therapeutic value in any kind of treatment in which the physician-patient relationship is so close varies in direct ratio to the degree of "rapport" established. Klaesi[3] emphasized the importance of establishing this proper attitude when he stated that "Our success depends to a very essential and decisive degree on how much the patients feel that we are sacrificing and devoting ourselves to them." We feel therefore that wherever possible the patient should receive an explanation of the projected treatment, emphasizing desired results and possible dangers.

Patient reactions to proposed insulin shock treatment are varied. A fair percentage may show complete unconcern. Others may refuse treatment because of psychotic interpretations of its purpose. Some accept treatment as a form of punishment. Not infrequently a fear reaction is obtained: fear of death or deformity, or that someone may perpetrate some sort of foul play (e. g., rape, impregnation or castration) during the period of unconsciousness. Perhaps the most encouraging reaction is interpretation of the proposed therapy as proof that the patient is sick either physically or mentally.

It is obvious that a thorough physical examination, including an electrocardiogram, is a prerequisite to treatment in every case. The heart and circulatory system should be studied with especial care. It is pertinent to note in this connection that small doses of insulin have produced serious alterations of normal rhythm in cardiac deficiency.

Contraindications for insulin shock therapy are essential hypertension, angina pectoris, coronary sclerosis or occlusion, valvular heart disease, myocarditis, Graves' disease, tuberculosis, bronchiectasis, and impaired hepatic, renal, or pancreatic functions.

As early as 1937, Rudolph Freudenberg[11] discovered that certain shocks not reversible by ordinary amounts of glucose could be promptly terminated by administration of betaxin or yeast emulsion. Since this time, other workers have found that the use of vitamins B_1 and B_2 or B complex throughout the course of treatment is advantageous in preventing irreversible reactions and in providing an adequate vitamin supply in the diet which, since it is so rich in carbohydrate, is frequently deficient in vitamin B. At present we routinely give 10 mg. of thiamine chloride, 10 mg. of riboflavin and 150 mg. of nicotinic acid orally throughout the course of shock therapy.

II. *The Insulin Team.*—Although many workers have used insulin as a form of ambulant treatment, and various authors report favorable results (see section on Modifications and Variations of Technic) with special adaptations of an ambulatory form of shock therapy, we are convinced that insulin treatment is definitely a hospital procedure, and we believe that the patients should be under constant observation and supervision throughout the waking day.

It is essential that a team of nurses and attendants be organized and specially trained as an Insulin Team. We prefer to provide male nurses for our male patients and female nurses for female patients, but in most cases female nurses could be as satisfactorily employed in caring for patients of both sexes. The nurses should be given a brief course in shock therapy, emphasizing the purpose of treatment, usual clinical reactions during various phases of treatment, and possible complications or unusual reactions. "Shock Treatment in Psychiatry," by Jessner and Ryan,[2] is an adequate, concise text for use in training the Insulin Team. The nurses should be particularly cautioned beforehand which symptoms should be immediately called to the doctor's attention and should be advised to refer to the doctor at once whenever in doubt.

The attitude of these nurses toward the patients under insulin treatment is an important factor in successful therapy. The whole method, including the climax of the coma and the events preceding and following it, is capable of arousing the affective reactions and sensitizing the patient for psychotherapy. A single nurse who arouses the antagonism of a patient may nullify all the therapeutic gains previously made. Because the patients are especially sensitive while under treatment, it is of utmost importance that they receive gentle and respectful treatment from the nurses. Insofar as possible the nurse's attitude should remain entirely objective and impersonal; this eliminates interference with proper rapport between physician and patient.

The insulin shock room should be well ventilated without drafts, and a warm even temperature should be maintained. These conditions are important because the patient perspires freely and body temperature changes during the hypoglycemic interval. Uneven temperature, or drafty ventilation may produce a chill

which, in the hypoglycemic condition, may easily result in secondary shock due to the marked body heat loss. The patients must be under constant surveillance from the time of administration of the insulin until at least 30 minutes after they are fully awake, and should be under observation for several hours thereafter because of the dangers of "delayed shock." We use the term "delayed shock" to indicate the reappearance of hypoglycemic symptoms after the patient has been brought out of the hypoglycemic state and has remained fully awake for 1 or more hours. During the first 2 hours we find it satisfactory to have one nurse on duty for each six patients in the insulin room. From the beginning of the third hour it is advisable to provide one nurse for each three patients.

The physician in charge should be immediately available throughout the first 2 hours, and he should be present in the insulin room from that time until all reactions have been successfully terminated. The necessity of his presence during coma is obvious. As James, Freudenberg and Cannon[12] remark: "Hypoglycemic coma may be compared with anesthesia, and the anesthetist never leaves his patient." The physician's presence at other times is of great importance because he needs to observe carefully details of the hypoglycemic development which might escape the notice of the nurses, and unless constantly present, he will be unable to seize the precise moment for terminating the treatment for either somatic or therapeutic reasons.

The following equipment should be assembled and kept in constant readiness on an instrument table in the treatment room:

1. Instruments:
   a. Syringes: 2, 10, 20 cc., and one graduated insulin syringe
   b. Needles: subcutaneous, intramuscular, and intravenous
   c. Alcohol, ether, cotton, tourniquet
   d. Kidney basins
   e. Stethoscope, sphygmomanometer, reflex hammer, and small flashlight
   f. Mouth gag and mouth opener (A practical device may be made of three tongue blades bound with adhesive tape.)
   g. Oxygen tent and live cylinder of oxygen.
2. Feeding Tray:
   a. Stomach tube with funnel and K-Y jelly
   b. 2-ounce glass syringe for aspirating stomach fluid and litmus paper for testing stomach contents
   c. Feeding cups
   d. 50 per cent glucose solution
   e. Graduated cylinder for measuring glucose
   f. Fruit juice or weak tea for diluting glucose.
3. Drugs:
   a. Ampules of caffeine, coramine, adrenalin, digifolin, strophanthin, betalin
   b. Dextrose, 50 per cent, in 20 cc. ampules for intravenous use
   c. Atropine sulfate, tablets, 1/100 Gr., or atropine ampules, .5 per cent solution.

We use special treatment charts for every patient. The following are recorded throughout each treatment:

1. Day of treatment, amount of insulin, method of administration, time given, and name of nurse or doctor who gave the injection
2. Time marked for every chart notation
3. Temperature at time of administration of insulin: every 30 minutes during first 2 hours, and every 15 minutes thereafter until termination of shock; at 2 p.m. and at bedtime
4. Pulse at start of treatment; every 30 minutes, etc., as for temperature
5. Respiration at start of treatment; every 30 minutes, etc., as for temperature.

Record is made also of the following:

1. Medication or other treatment
2. Nourishment, including amount of glucose given to terminate shock and meals eaten
3. Weight at weekly intervals
4. Observation of patient reactions and behavior
5. Symptoms, including progressive development of the hypoglycemic state recorded either by the doctor or by the supervisor of the insulin nurses.

It is recommended that either the chart of Frostig[7] or that of Ross and Malzberg[13] be used. These charts are reproduced in Figures 1 and 2.

III. *Method of Treatment.*—

Sakel's method of hypoglycemic shock treatment consists of four phases:

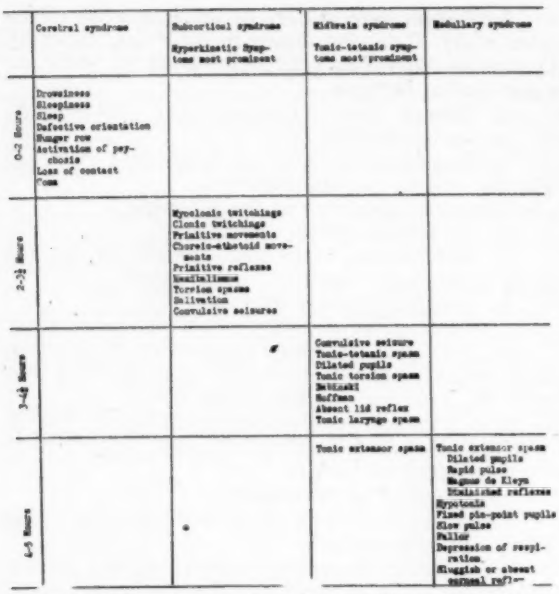
1. In which increasing doses of insulin are administered;
2. Characterized by the typical shock reaction each day;
3. In which frequent rest days are introduced;
4. Where small doses of insulin are given, and hypoglycemic reactions are terminated early.

The last two phases are infrequently used at present, and most workers now consider treatment as consisting of Phase I (preparatory phase) and Phase II (shock phase). Usually 1 rest day per week is given to all patients, but some prefer an additional rest day in the middle of the week. In addition, 1 or 2 rest days are allowed for females at the beginning of the menstrual period, and if a patient appears exhausted following a convulsive seizure or severe coma an extra rest day may be granted.

HOURS	SYMPTOMS		LOCALIZATION
First	Somnolence (97.2%) Hypotonia (97.4%)	Latent time Perspiration (99.1%) Salivation (90.1%)	Suppression of cortical and cerebellar activity
Second	Clouded consciousness Fine tremor Aphasia Apraxia Agnosia Fall of temperature Diminished exteroceptive sensitivity	Perceptual disturbances Motor excitement Confusion Psychotic syndromes	
Third	Loss of consciousness (100%) Primitive movements (71.5%) Forced graspings (71%) Clonic twitchings (79.2%) Myoclonoid twitchings Choreiform, Athetoid, Hemiballistic movements (35.6%) Early torsion spasms	Motor restlessness Exophthalmus Dilated pupils Light reaction Pulse rate increased Exteroceptive sensitivity increased	Release of the basal ganglia and hypothalamus
Fourth	Deepening stupor Increased tonus Coarse tremor Tonic spasms (82.2%) Tetanic postures Conjugate deviation of the eyes Late torsion spasms	Pupils small or large Pulse rate increasing or decreasing Signs of paralysis of the pyramidal functions Decreased exteroceptive sensitivity Increased interoceptive sensitivity	Release of the midbrain Suppression of pyramidal functions
Fifth	Tonic extensor spasms (34.1%) Posture reflexes Depression of tendon reflexes Deep coma Diminished sensitivity Lid and corneal reflexes sluggish Shallow respiration No corneal reflexes	Pin-point pupils No light reaction Pulse rate decreased	Release of the medulla oblongata

Reprinted from American Journal of Psychiatry, March 1940.

Fig. 1



Reprinted from American Journal of Psychiatry, Sept. 1939.

Fig. 2

The absolute necessity of accurately carrying out Sakel's procedure has been repeatedly emphasized in reports, and therapeutic failures have been ascribed to unwarranted alterations of this technic. It must be remembered, however, that Sakel himself, as he gained more experience, considerably modified his original procedures. It is as true in insulin treatment as it is in any other therapeutic procedure that the skill, experience, and art of the physician may with reason induce him to make certain variations in the accepted technic. Katzenelbogen[14] says on this point: "In following rigidly one's own technique or that prescribed by others without discriminating in individual cases and without making use of one's clinical experiences and medical and common sense, one is bound to render a procedure that may be most adequate for one case, more or less inadequate for other cases."

Phase I: Ordinarily, insulin is given to the fasting patient early in the morning 6 days out of the week, allowing Sunday as a rest day. We begin our treatments at 7, as this allows a 5-hour period before 12 for development and termination of the hypoglycemic reaction. The nurse who superintends the insulin team gives the insulin injection. Most authorities advise placing the injection deep within the gluteal musculature, but we have found it satisfactory to use a hypodermic needle and place the injection in the patient's arm. Although it is stated that an insulin depot within the subcutaneous fat tissue may lead to a local necrosis, we have never met with any such complication with our method, and we feel that it has two advantages over the intramuscular technic: (1) We avoid the soreness and the all too frequent sequel of excessive scar tissue in the gluteal region; (2) in general, absorption of liquids from muscular tissue occurs more slowly.

The usual initial dosage is 15 units of plain (not protamine zinc) insulin. We increase the dosage by 10 units daily until the patient's reactions indicate that we are approaching the shock level, and then increase by 5 units daily until a satisfactory hypoglycemic reaction is achieved.

The reaction is usually terminated after 4 hours during the preparatory phase by giving the patient a solution of sugar which has been diluted with sufficient fruit juice or weak tea to make 8 oz. of fluid. We determine the amount of sugar to be given by allowing 1 Gm. of sugar for each unit of insulin plus 10 per cent of the total; thus if the patient had received 100 units of insulin, he would be given 110 Gm. of sugar. It is customary to make up a stock of 50 per cent sucrose solution for speed and efficiency in measuring out the required amounts of sugar for the various patients. Warm dilute solutions are more readily absorbed than cool ones. The patient will be able to drink during this period, but in case of refusal, the solution must be administered through a nasal tube. After termination of treatment the patient is served his breakfast and requested to eat heartily. We do not believe that any special diet is necessary for our insulin patients and unless there is a particular indication for a change, we keep them on the regular hospital full diet.

Occasionally an increase in the hypoglycemic symptoms develops after the patient has ingested the terminating sugar solution. This reaction appears to be a result of increased spontaneous output of body insulin induced by the reflex stimulation of the sugar in the intestinal tract. We make it a rule, therefore, to keep the patient at rest in bed for a 30-minute period after administration of the glucose solution, and under observation throughout the day.

Phase II: When hypoglycemic symptoms are so developed that the patient loses consciousness during the third hour, phase II is reached and insulin dosage is not further increased. During this phase the patient is frequently unable to swallow his sugar solution, and it is usually necessary to terminate the reaction by administering the solution through a nasal tube, or intravenously in case of emergency.

The proper dosage in ordinary insulin therapy may vary within wide limits, depending upon (a) individual patient's tolerance and (b) the depth of hypoglycemic shock which one considers desirable in any particular case. Tolerance to insulin shows marked variations in different individuals, and even in the same individual in different states of health and resistance. We have treated a patient who showed shock reactions with 15 units of insulin; others have required over 200 units. Frostig[15] reports shock reactions induced by amounts as small as 8 to 17 units, and as large as 300 units. One case is recorded in which 600 units did not produce any symptoms of hypoglycemia. It is because of this marked variation in tolerance that we start our patients with a dosage as low as 15 units and proceed to increase this dosage slowly until a satisfactory hypoglycemic reaction develops.

The insulin dosage is determined and guided by the clinical picture alone. Blood sugar determinations serve no practical purpose; as Sakel[4] says "the blood sugar level gives us no indication for increasing or decreasing the insulin dosage." When the dosage reaches a level which will induce a loss of consciousness during the third hour and deep coma in the fifth hour, the reaction is considered at its optimum stage. In recent years several workers have advanced the opinion that satisfactory results may be obtained without allowing the coma to develop. Jones[16] suggests that coma per se is not the essential therapeutic factor in hypoglycemic shock therapy.

During the early years of experimentation with insulin, it was customary to increase the dosage daily until shock was obtained, regardless of the amount of insulin required. At present, most workers believe that it is inadvisable to use more than 200 units. If one meets insulin resistance and cannot induce a satisfactory reaction at the level of 200 units, the usual procedure is to follow the zigzag method developed by von Braunmühl[17] for overcoming this resistance. He instituted three methods by which such resistant patients might be made susceptible to insulin: (1) The direct alternating type; (2) delayed alternation; and (3) the low alternation type.

In the direct alternation method (Fig. 3) the dosage is dropped from the maximum which has proved unsatisfactory, to double the initial dose. The next day, the patient is again given the maximal dose, and this alternation is continued for 6 or 8 days.

The delayed alternation plan (Fig. 4) follows a slightly different procedure. On the first day, the dosage is dropped from the maximal to twice the initial dose, but on the second day only half the maximal dosage is given; the maximal dose is again administered on the third day. This alternation is likewise repeated five or six times until a proper shock dose is reached.

In the low alternating method (Fig. 5) twice the initial dose is given the first day, and half the maximal on the second day. Alternation at these low levels continues for 6 to 8 days.

Von Braunmühl combines these various types of alternation in some cases. Thus, after three direct alternations, he may use a delayed alternation cycle.

These zigzag technics often make it possible to induce a coma at a much lower dosage level than might otherwise be required. For this reason it is the method of choice in sensitizing patients whose normal insulin resistance is high.

Various factors may, during the course of treatment, influence the physiology of the patient in such a way that what was originally an optimum dose may fail to produce the desired effect. The exact management of shock therapy, therefore, demands proper recording of the daily symptom-reactions of each patient because the proper daily dosage can be determined only by analysis of the charts of the preceding day. There are certain reactions which, when they appear on the chart, indicate either an increase or decrease in subsequent daily dosage:

1. If the medullary symptoms (see Fig. 2) appear too early the dose must be decreased; if the medullary phase was not reached the dosage must be increased.

2. The patient sensitization must be considered. When increased sensitivity develops, the same dose will produce deeper shock the next day. This is an indication for decreasing dosage; conversely, decreasing sensitization will require additional insulin to cover it and produce the desired degree of shock.

3. After several satisfactory shocks, it is customary to try a dosage of 5 to 10 units less than that previously used, as experience has shown that this diminished dosage may produce the same effect as the previous optimal dose.

4. If the patient awakens spontaneously during the first 3 hours on successive days the dosage is insufficient.

It is important to note that an increase in dosage is possible only by changing the number of units to be given on the following day; additional insulin should never be injected before the treatment is terminated.

TERMINATION OF SHOCK

Perhaps the most important consideration in insulin shock therapy, aside from selection of the proper dosage, is the determination of the most satisfactory time for termination of the hypoglycemic reaction. The beginner in insulin therapy is plagued by this problem, and it is a cause of concern even when the worker has become more experienced. No dogmatic statements can be made about time of termination, but there are certain warnings which must be borne in mind, and certain general rules which can be used as guides, provided the optimum insulin dosage has been administered.

One must always remember that after Phase II has been reached, the hypoglycemic reaction becomes dangerous after the third hour. This danger period is also the period of greatest therapeutic efficiency, and prolonged shock has in some instances brought about improvement which had not been obtained with early terminations.

It may be best for one unskilled in the use of insulin to routinely interrupt the treatment after 3½ hours. Unless one has had sufficient experience to be well qualified to handle any unforeseen development, and is wholly familiar with the reactions of the patient during treatment and upon awakening, it is sound therapeutics to interrupt shock (present when the patient is unconscious and does not respond to stimulation) 30 to 40 minutes after symptoms appear.

The selection of the proper time for termination of the hypoglycemic reaction is also determined by certain psychiatric factors. "The main psychotic conditions (not to be confused with diagnosis) encountered in treatment are: paranoid conditions with delusions, the condition of catatonic stupor and the condition of catatonic excitement."[4]

1. With patients presenting predominantly paranoid clinical syndromes, Sakel allows the "wet shock" (which is discussed under "Clinical Reactions during Hypoglycemic Period" in this paper) to progress to a deep coma. He recommends permitting the patient to remain in the comatose state up to a maximum of 4 to 6 hours after the injection, depending upon the patient's physical condition. He considers development of an epileptic convulsion, uncertain or unstable physical condition, or appearance of any threatening signs

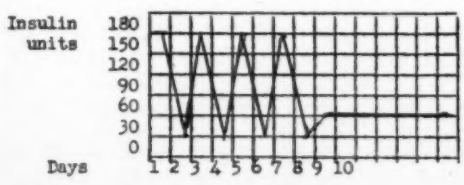


Fig. 3

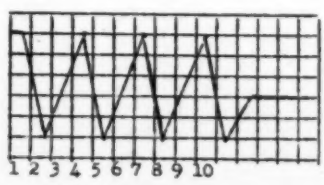


Fig. 4

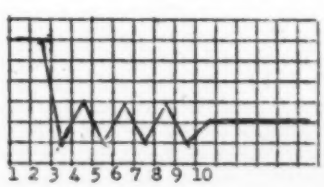


Fig. 5

as indications for immediate termination of the hypoglycemia, regardless of other considerations.

2. With cases of catatonic stupor the reaction is terminated at that time when the patients show more or less activity. Such signs of activity range from sudden awakening and the primitive movements usually seen just before, or accompanying, loss of consciousness, down to "a scarcely perceptible psychomotor relaxation." Complaints of hunger, requests for food, etc., come under this head.

These changes may be slight and therefore most careful observation of the patient is necessary, lest one lose or at least diminish the chance to resolve the stupor at the optimum moment. When one has succeeded in obtaining a persistence of this activity beyond the period of hypoglycemia, deep comas can be introduced and the treatment continued as in paranoid types. In brief: The stupor is interrupted when the patient shows signs of activity, thus turning the reaction into a quasi-productive psychosis. Then the induced "productive psychosis" is attacked by means of deep coma. Should the clinical picture again change, and the catatonic stuporous state reappear, technic should revert to the original procedure.

Sakel believes that in cases of this type it is often helpful to favor the development of reflex motor activity by external stimuli such as "questioning, attempts to establish contact, or unpleasant stimuli such as noise, uncomfortable position, bright light, testing of reflexes, etc."

3. Those cases manifesting a state of catatonic excitement may be considered as the most difficult type to manage satisfactorily. Sakel found that many patients in this category did not react as well to prolonged hypoglycemia with coma as they did to a shorter hypoglycemic period.

Patients who manifest catatonic excitement are started on the insulin program in the usual way, and the dosage is gradually built up to the level which would, in each case, induce a shock reaction if allowed to progress to the third or fourth hour. Then the psychiatrist must carefully watch each patient to select the precise time for terminating the hypoglycemia. The optimum time for termination is that point at which the somnolence has reached its maximum intensity and the patient is on the verge of coma. The comatose stage itself should be avoided in these cases.

When this optimum level is achieved, the patient is urged or commanded to drink the prepared sugar-fruit juice. It will be apparent that one will encounter difficulties with this type of patient that are not present in the other groups. The reaction should be allowed to go as far as possible without development of coma, and yet the patient may, in the desirable semicomatose stage, be unwilling or unable to drink the sugar solution. Unfortunately, the effort necessary to terminate the reaction by nasal tube at this time may seriously disturb and antagonize the patient, for he is usually just sufficiently conscious to resist the effort.

Sakel[4] remarks that "in none of our therapeutic groups is excitement or the use of force as harmful for the patient's condition as they are here. Every 'shock,' and therefore the shock of forced feeding should be avoided as far as possible." In some cases, since conditions cannot be ideal, it may be best to terminate the hypoglycemia by the intravenous method. With other patients, it may be possible to insert the nasal tube after the reaction has progressed to a point at which the excitement has given way to a quiescent and quasi-cooperative state, and keep the tube in place until the moment for termination arrives. Still other patients may best be managed by allowing the reaction to progress to the point at which the nasal tube can be inserted and the tube feeding accomplished with a minimum of disturbance, even though this allows the patient to slip into a light coma before the sugar is absorbed.

It is often beneficial to give those who exhibit catatonic excitement a second injection of insulin 3 to 4 hours after the termination of the treatment. This is done for its pacifying effect, with no intent to induce a second shock reaction, and for this purpose a small dose (10 to 20 units) will suffice.

This presentation of three classes of reactions is necessarily somewhat schematic and cannot be considered as a rigid formula. Such general rules, like all other rules of therapeutic procedure in medicine, have their exceptions, and each patient may require some modification in order to provide greater efficiency in that particular case. It should be borne in mind also that these technics as originally developed by Sakel were meant to apply chiefly to cases of recent onset.

It is unwise, except in emergency, to terminate treatment at the preshock level when the patient shows evidence of tension, anxiety, fear, or acute hallucinations. On the other hand, when it appears that the patient, in slight or moderate hypoglycemia, shows better contact with reality, it may be advisable to terminate the treatment at that level and attempt to further interest, transference, and reality feelings by psychotherapeutic methods while this favorable status endures.

Generally speaking, recent cases do not require as deep a coma as do the more chronic ones. Frostig,[7] whose results in treatment of recent cases are among the best reported (74.4 per cent recovered), states that the medullary phase was reached in only 34.1 per cent of 129 patients reported. For most recent cases, it appears that shocks terminated after a tonic phase of no more than an hour are therapeutically effective.

Not infrequently a patient may spontaneously awaken from a more or less deep hypoglycemia. The psychological status of the patient at the time of awakening will determine whether treatment should be terminated or allowed to proceed. If the patient is calm, clear, approachable and "gemutlich," termination is indicated.

The prolonged coma advocated by some authors is discussed under the section, "Modifications of Technic," of this paper. It is not a procedure to be followed by the novice, and the question may well be raised whether it is ever worth the risk involved, despite the reports of occasional dramatic improvement.

In discussing time of termination, mention should be made of the two types of hypoglycemic convulsions (fully discussed in this monograph under the section on Clinical Symptoms) which may appear. The cortical epileptiform seizure (called "dry shock" by Sakel to differentiate it from the "wet shock" in which predominant characteristics are excessive perspiration and somnolence) usually appears during the first 2 or 3 hours. This type of convulsion often produces a favorable change in the patient's mental status; rarely an unfavorable change. Because of the frequent development of this improvement in mental condition follow-

ing a convulsion, some workers have made seizures certain by the use of electroshock in conjunction with insulin. (See section, "Modifications of Technic," of this paper.)

The second type of seizure is the late-occurring tetanoid convulsion of the decerebrate type. In contrast to the epileptiform convulsion, the tetanoid seizure is rather definitely an undesirable development in treatment.

We believe that treatment should be terminated immediately after a convulsion has occurred, although some workers prolong the treatment until the usual time for termination. Termination following a convulsion is usually accomplished without difficulties because the majority of patients will have awakened spontaneously and are able and willing to take their sugar.

In addition to the psychiatric indications for termination of treatment, one must remember that certain physiological developments may call for interruption of the hypoglycemia, and also that the depth of the coma may be determined by purely medical reasons. (See section on "Complications" of this monograph.)

From this discussion it may be evident, as Sakel[4] remarks, "that the main difficulty at present in the hypoglycemic treatment no longer lies in the determination of the individual shock dose, nor in the avoidance or management of the complications that we have come to know, but rather in the effective dosage of the hypoglycemia, in other words in the choice of the shock type and the timing of the termination."

TECHNIC OF TERMINATION

Administration of carbohydrates is the accepted method of terminating the hypoglycemic reaction. The use of adrenalin, formerly advocated as an insulin antagonist, has been found unsatisfactory and entirely abandoned. The carbohydrate of choice is sugar, although workers in England report satisfactory results with potato soup which they were forced to use during the war because of the strict rationing of sugar. (See under section, "Modifications of Technic," of this monograph.)

Obviously, three possible methods of administering sugar are available: (1) Orally, (2) by nasal tube, and (3) intravenously. (1) When the patient is able to swallow, the sugar solution is given in fruit juice or weak tea. Milk is not recommended as it is more difficult to swallow, and may delay absorption. The oral method is used during Phase I, during somnolent states, and in cases of spontaneous awakening. When there is doubt as to the patient's ability to swallow, or if he appears liable to aspirate some of the fluid, oral administration should not be attempted. (2) When the patient is unable to swallow, the use of the nasal tube is advocated. It should be emphasized that because of the diminution or disappearance of the cough reflex during Phase II, it is easy to insert the tube into the trachea without producing any evident change in the patient. Therefore, the proper position of the tube should be ascertained by aspirating about 50 cc. of gastric fluid and testing for acidity with litmus paper. The position may also be checked by forcing air through the tube with a syringe while listening with the stethoscope placed over the stomach. Of course, the tube should be tightly clamped during withdrawal to eliminate the possibility of leakage and consequent aspiration. The stimulus of the insertion of the nasal tube may arouse the patient partially and when this occurs he usually becomes resistant. If he is aroused sufficiently to be able to swallow, he should be urged to drink. If he appears too stuporous to make this advisable, it is best to postpone termination until the tube can be introduced. One should never continue to force-feed a struggling, resistant patient. Remember that one can always use the intravenous route in case of emergency. (3) In any development requiring immediate termination of the hypoglycemic reaction, intravenous administration of glucose is indicated. Intravenous glucose is used routinely by some workers during Phase II, but we cannot recommend this procedure. There are at least three valid objections to routine use of the intravenous method: (1) Repeated venipuncture scarifies the veins of the arms. (2) Since the solution is hypertonic, its use might easily result in thrombosis and possible subsequent embolism. (3) The sudden awakening, despite reports to the contrary, does not seem as satisfactory as the gradual return to consciousness which follows gavage.

For injection we use a 50 per cent dextrose solution (although many workers recommend a 33⅓ per cent solution) and a 22 gauge short bevel needle. The solution is injected slowly. The patient will usually awaken after from 5 to 20 cc. have been injected, often while the needle is still in the vein. It must be remembered that although intravenous glucose will thus dramatically awaken the patient, additional sugar must then be given by mouth. The glucose immediately raises the blood sugar level, but it is oxidized in a short time and unless extra sugar is made available in the body the blood sugar will again fall and the patient may relapse into shock.

Awakening.—Ordinarily the patient slowly and gradually returns to the waking state within 10 to 40 minutes after the sugar solution enters the stomach. The patient coming out of coma will cease perspiring and may tremble as though cold. The eyelids may flutter, and the face loses its pallor often taking on a flushed appearance. Random movements of the fingers, or the whole arm, or restless movements of the legs are observed. Frequently the patient may toss his head or his body from one side to the other while the hands make clutching movements. Then he may cough, mumble, sigh, or groan. He becomes actively conscious, opens his eyes and allows them to focus upon the scene. In most instances he is in good spirits, friendly, and hungry. For a period (which may not last more than 30 minutes) he shows evidence of better contact with reality; the schizophrenic preoccupation vanishes. Unless permanent change has been effected, this period of "gemutlicheit" is then superseded by the habitual schizophrenic behavior.

Intravenous termination produces a sudden awakening; the patient often arouses before the injection is completed and demands to know what is happening. In most instances intravenous glucose does not produce the period of warm affectivity which follows introduction of sugar into the stomach.

MODIFICATIONS OF TECHNIC

As workers gained experience in using Sakel's method, it was only natural that they should become interested in attempting to find ways of obtaining more satisfactory reactions. This experimentation has produced a number of variations some of which have already been mentioned briefly. The majority of these variations have been designed either to minimize the

dangers or to intensify and prolong the drastic aspect of the insulin reaction. Certain of these modifications merit some discussion.

Beno,[18] in 1938, reported a method of insulin therapy without the use of either shock or coma. Instead of giving the patient increasing doses of insulin daily until shock reactions appear, he administers the same moderate amount—often only 10 to 20 units—thus systematizing the procedure used by those who worked with insulin in the preshock era. This technic often lessens the negativism, antagonism, agitation, and similar attitudes in schizophrenics and may change the patient's accessibility sufficiently to enable the worker to use psychotherapy effectively. In some instances a satisfactory contact may be made and an eventual recovery be effected. Certainly Beno's method should be tried with those patients presenting unfavorable conditions, or where there are contraindications for shock therapy.

Bennett and Miller[19] reported favorable results with subshock dosage of insulin in treating patients whose behavior difficulties interfered with proper hospital management. This included chiefly cases of overactivity, pugnaciousness, and refusal to eat. An average dose of 25 units of insulin was given 2 hours before breakfast and lunch respectively. This program decreased the use of sedation by 60 per cent in the 125 cases reported, and hyperactivity was usually controlled within 36 hours. Jessner and Ryan[2] aptly comment on this program, "It should, however, be borne in mind that this procedure, except on rare occasions, is merely symptomatic and the results are beneficial mainly for the hospital and its staff."

Von Braunmühl's[17] "zig-zag method" has already been described in this paper under "Technic of Insulin Therapy." It was developed for use in those cases which, because of the patient's high insulin resistance, required excessive amounts of insulin in order to bring about a satisfactory shock reaction. Through the use of this technic it is possible to so alter the patient's insulin resistance that shock may be obtained with relatively low insulin dosages.

Reese[20] developed a modification of procedure which aims at shortening Phase I of treatment. To reach a shock level quickly, he ordinarily begins with 60 units of insulin and increases the dosage by 10 to 30 units each day, depending on each patient's reaction, until he achieves a satisfactory shock reaction. From this point, the amount of insulin is varied until the smallest dose necessary to obtain a proper shock reaction is determined. Aside from the fact that this method tends to increase the risks involved in insulin therapy, at least two disadvantages are apparent: (1) The effects of Phase I on the patient are lost, and (2) the operator does not have the opportunity that the orthodox procedure affords to study his patient under gradually increasing insulin dosage.

Administration of insulin by the intravenous route has been used by various workers. The method was introduced by Wiesel, Spotnitz and Polatin.[21] Small subcutaneous doses of insulin are given to the patients for a few days prior to intravenous treatment in order to determine sensitivity to the drug. An initial intravenous dose of 12 units is increased by 5 units daily until the proper shock dose (which varies from 12 to 90 units) is reached. Reactions obtained are essentially the same as those produced with Sakel's method but they develop with greater rapidity. The patients become markedly somnolent or even pass into deep coma within 45 minutes. The 23 patients reported all awakened spontaneously within 2 hours and were able to take glucose by mouth. None of the patients had convulsions, and no complications were observed. Polatin and Spotnitz[22] later reported a follow-up study of 24 schizophrenics treated by the intravenous method. The authors believe that the rapidity with which hypoglycemic shock can be produced is of prime importance, and recommend the use of intravenous technic in acute psychoses. Jones,[16] using a slight variation of technic, experimented with the use of intravenous insulin. His patients were first given insulin intramuscularly until the optimum coma dose was determined. Treatment was then continued by giving increasing doses intravenously until the coma dose was reached. Sandison and McGregor[23] also reported satisfactory results with intravenous insulin in 33 patients. All reports studied seem to indicate three advantages of the intravenous technic: (1) Shortening the time of treatment, both the daily treatment and the length of the course, thereby reducing the time of necessary medical and nursing supervision; (2) absence of convulsions; (3) spontaneous awakening.

Polatin and Spotnitz[24] originated a method of ambulatory treatment which is preferred by some physicians and hospitals where extra nursing facilities and patient beds necessary for the usual technic cannot be provided. The duration of treatment varied from 1 week to more than 3 years. The patients received hypodermic injections of insulin at 5 a.m. After hypoglycemic symptoms appeared and were present for about 30 minutes, the usual sugar was given by mouth, followed by the hospital breakfast. The customary initial dose of 5 units of insulin was increased daily until patients showed mild hypoglycemic shock (hunger, followed by weakness, excessive perspiration and drowsiness) within 5 hours. The dosage was kept at a minimum (except in rare instances not more than 40 units), and the severity of the hypoglycemic symptoms was controlled by increasing or decreasing the interval before which food was given. Patients are allowed to be up and about during treatment, performing routine duties. Those complaining of weakness are permitted to lie down during the 30 minutes of definite hypoglycemic symptoms. Tomlinson and Ozarin,[25] using essentially the same technic, reported improvement in 34 of 52 cases treated. It should be emphasized that this treatment is carried out within the hospital and the patients are under constant observation. The success of this technic does not justify the method, used in too many instances, of home treatment in which the patient is given insulin in the morning and allowed to determine his termination time by subjective symptoms.

A number of workers have used a method of protracted insulin coma, especially in cases presenting schizophrenic reactions which have been developing over a relatively long period of time. Kraulis,[26] after observing sometimes dramatic improvement in cases where coma had unintentionally lasted from 8 to 48 hours, became interested in developing a relatively safe means of therapeutically utilizing this prolonged coma with patients who had not responded to Sakel's method. He used small (10-15 Gm.) periodic glucose feedings, sufficient to sustain the patient without arousing him (the so-called "Zucker Schnaps"). He found the method difficult, and dangerous because of the frequent occurrences of gastric retention.

Wortis, Terris, and Korr[27] refined the technic by devising a method that enabled them to sustain brain metabolism at a level adequate for cell maintenance but below the levels which would support consciousness and associated functions of the cerebrum. Their method consists of intravenous administration, at controlled rates, of a 5 per cent glucose-saline solution. Sixty experiments without mishaps were reported. Rivers and Rome,[28] more recently reporting effects of prolonged insulin coma (38 patients with fifty-one periods of extended coma), are of the opinion that protracted coma did not appear to be particularly beneficial to the patients. The increased danger to the patient's life and the augmented possibility of permanent brain damage seem to far outweigh the chance that improvement might be effected by deliberate use of this method.

A number of workers have combined electric convulsive therapy with insulin therapy in the belief that it was the mechanism of the convulsive seizure which was responsible for the alteration of the psychosis. Recently Blumenthal,[29] presenting a rather lengthy discussion of shock treatment in Palestine, described his methods and briefly indicated his theory as follows: "It is my opinion that insulin coma treatment is effectual through the regeneration of the cells and through the increase in metabolism. This effect cannot be attained with a few comas because it is, so to say, of a building-up nature. Convulsant treatment is like a bloody operation; it effects a rude mechanical destruction. Its result is based upon the destruction of pathologic mechanisms. But this means that in psychoses with, for instance, climax, gravidity, and psychogenic components the convulsant therapy, with its destruction, will break through the psychotic mechanisms, often in a very short time. But in cases of more endogenously proceeding psychoses there must be a building-up share of insulin therapy." He uses a few electric convulsive treatments to "break through" and then continues with insulin therapy. He concludes that in the genuine schizophrenic psychoses, the advantage of convulsive therapy is that it shortens the duration of the insulin therapy period. Final results do not appear significantly different from those reported by workers using insulin alone.

A minor technic modification resulting from the exigencies of war is reported by McGregor and Sandison.[30] Unable to obtain by government ration sufficient sugar for their patients receiving insulin treatment, they developed a method of combining intravenous glucose and oral administration of potato soup in terminating the hypoglycemic reaction. Approximately 7 gm. of glucose was given intravenously, followed by ingestion of 12 oz. of potatoes in the form of soup. The soup was given again in the evening. The authors reported that late comas were avoided with this method, and that the vomiting often seen in sugar feedings did not occur.

CLINICAL SYMPTOMS OF HYPOGLYCEMIA

The phenomena of hypoglycemic shock appear progressively in certain definite stages. Von Angyal[31] was among the first to report the results of observations of symptoms in patients undergoing insulin shock. He observed that the reactions which progressively appeared might be divided into six phases, each one referable to a different part of the brain.

In the first phase, which appears within 2 to 3½ hours, there is euphoria, talkativeness, and psychomotor restlessness. This phase, less constant in appearance and less clearly defined than succeeding phases, is interpreted as a result of partial interference with the function of the poles of the frontal lobes.

There appears next a transitional phase, beginning 2½ to 3½ hours after injection, in which somnolence, moderate hypotonia, and assumption of postures of sleep are observed. These reactions are said to be the result of functional ablation of the frontal poles.

The symptoms of the next phase, beginning 3 to 4½ hours after injection, are interpreted as being due to functional loss of the precentral gyrus and later of the subcortical ganglions. Reactions of this phase include increased muscle tone, clonus, pathologic reflexes, abnormal postures, primitive mouth movements, and forced graspings (these changes occur first on the right side in right-handed persons and later become bilateral) followed by profound sleep, choreiform and fascicular twitches, crossed tonus changes, and loss of forced grasping.

The fourth phase is characterized by disappearance of spontaneous movements and occasional development of torsion spasms.

A brief transitional phase next appears (4½ to 5½ hours after injection) during which there is interference with the function of such extrapyramidal pathways as the rubrospinal and tectospinal tracts, producing decreased muscle tone, diminution of the reflexes, and loss of pathological reflexes.

The sixth phase is marked by development of deep coma, complete areflexia, and later cardiac and respiratory disturbances of bulbar origin.

Thus it appears that the deleterious influence of the hypoglycemia attacks the various parts of the motor system according to the order of their phylogenetic and ontogenetic appearance. Possibly the frontal lobe is involved first because, both ontogenetically and phylogenetically, it appears later than the other parts of the motor system.

Response to hypoglycemic shock varies in different individuals, however, and some patients show reactions in spheres other than the motor system. Von Angyal[32] concludes that patients' responses fall into two major categories: frontopolar (classical reactions of which have just been reviewed) and parietal.

He subdivides the parietal group into four syndromes: (1) A cenesthetic syndrome, which is characterized by the appearance of paresthesias in the extremities or trunk and by disturbances in perception of the body scheme. (2) The paralogic sensoro-amnestico-aphasic syndrome presents mental reactions typical of schizophrenia. The patient is unable to coordinate sensory, intellectual, and affective aspects of a concept or situation. Speech characteristically includes perseveration, clang association, incoherence, and uttering of disconnected short phrases or words. Thus it is seen that the mental processes or concepts used in speech are affected: speech itself is not disturbed. (3) The staticoparesthetic subgroup presents feelings of imbalance and sensations of moving through space. There is usually a disturbance of time perception, and nystagmus is often reported. This syndrome is often coupled with symptoms of the second category. (4) The last syndrome is the parieto-occipital, characterized by alterations of perception of motion or space and complex visual hallucinations in the form of colored objects, entoptic pictures, macropsia, or micropsia. The responses of each patient usually remain characteristic throughout one or more shock periods. Since a similarity between the shock syndromes and the symptoms due to the psychosis was observed in 6 of his cases,

von Angyal suggests that the reactions induced in the hypoglycemic state result from dysfunction of those portions of the cerebrum which have been rendered vulnerable by the schizophrenic process.

The specific succession of the hypoglycemic symptoms is maintained regardless of the insulin dosage. Their appearance is retarded by decreasing or hastened by increasing the amount, but the sequence is not altered. The symptoms appear in 45 to 55 minutes with intramuscular injections.

Frostig[7] and Ross and Malzberg[13] have prepared tables of symptoms based on time of appearance (Figs. 1 and 2) which are valuable for quick reference. For convenience in detailed study, however, the symptoms may be divided into mental changes, alterations of motor functions, and general physiological changes.

MENTAL CHANGES

The major objective symptom of the hypoglycemic state is a gradual loss of consciousness which develops in a wave-like progression. As the stage of light drowsiness appears, speech becomes slow, "light and airy," as in the euphoric state of alcoholism; grasping of questions is difficult. As the period of unconsciousness approaches, the speech becomes thickened, slurred, and indistinct, often followed by spontaneous bradylalia, perseveration, protestation, groaning, and later incoherent mumbling as the patient lapses into unconsciousness. Disorders in perception of forms, dimensions, and movements are reported in the precomatose stage.

The symptoms were interestingly reported from the subjective viewpoint by Wiedeking[33] who with two colleagues performed self-experiments with insulin hypoglycemia, reporting observations of general well-being, affective tone, state of consciousness and sensorium as long as possible before the advent of coma. All three reported a sense of hunger in almost all shock periods, independent of time or amount of insulin. Headache was a frequent complaint. Mental fatigue occurred with doses of less than 40 units, superceded by confusion or a comatose state with larger doses. A gradually increasing difficulty was reported in thinking, in concentration, and in understanding what was said to them. Subjects commented on a total absence of thoughts before the coma developed. Pseudohallucinations, aberrations of taste, vision, temperature, sensation, touch, and position sense were noted during the precoma somnolent period or during the awakening period. The characteristic emotional condition was one of apathy and indifference; there was none of the elation and euphoria which occurs in alcoholism before narcosis intervenes. There was an accompanying body fatigue and sensation of heaviness.

Awakening from the coma was accompanied by disorientation, then progressive ability to recognize surroundings. The subjects reported occasional dreams of receiving 20 cc. of glucose solution intravenously. The author concludes that the development of the coma is dependent upon loss of the powers of concentration, attention, and perception.

ALTERATIONS OF MOTOR FUNCTIONS

Disturbances of motor function show considerably greater variations in different patients than do mental changes. Some patients proceed quietly into coma showing almost no psychomotor activity. Most patients will, however, display some or all of the following abnormal motor acts.

During the period of somnolence, the patient commonly shows an increased psychomotor activity. He is restless and uneasy. He moves around, rolls from one side to the other, tosses his arms about, rolls his head, pulls at the covers. He may attempt to embrace the nurse or doctor, and masturbatory movements are fairly common. As the reaction progresses, the movements tend to become more primitive and sucking, grasping, and rubbing movements are usually seen. Often slow aimless movement of the eyeballs is evident, reminiscent of the eye movements of the very young infant. These movements seem to herald the beginning of the stupor.

Clonic twitching movements, another abnormal motor response, do not appear to be so closely related to loss of consciousness. While they usually appear during the first or early in the second hour, they may appear while the patient is still fully awake. They usually are first observed in the facial muscles, soon progressing to the fingers. The twitching may increase in swiftness and area involved until a general epileptiform seizure results. External stimuli such as pinching the patient's arm will increase the violence of the twitching, and if sufficiently strong, the stimulus will induce a convulsion.

As the hypoglycemic shock deepens, a hyperkinetic-hypotonic syndrome is observed. Slow, random movements or, occasionally, sudden purposeless movements are seen. These gradually recede in amplitude and frequency and a state of increased muscle tonus supervenes.

This increased tonus may progress to a state of tonic spasm during which we find the arms pressed close to the body, with fists tightly clenched. The legs are usually stretched out rigidly, and the toes are in an attitude of contraction. This period lasts for an interval varying from several seconds to a few minutes and is usually succeeded by a state of hypotonia during which, because of persistent tendency toward spasticity, attempts to flex the limbs may result in redevelopment of the spasm. Sometimes late torsion spasms with conjugate deviation of the eyes and slow turning movements of the head and neck may be seen to follow the above hypotonic phase.

Treatment is ordinarily terminated before the next phase appears, but in some cases because of delayed glucose absorption time or other unusual development, the reaction progresses toward deep coma and a further change in tonus is observed. The arms and legs become fully extended, with internal rotation of the arms, pronation of the hands and clenching of the fists. This phase simulates the so-called "decerebrate rigidity" of the laboratory animal in which the cord has been sectioned just caudal to the red nucleus.

Finally, late in the coma stage, tendon reflexes become weaker and gradually disappear. Extensor toe responses cannot be elicited. Lid and corneal reflexes seem to disappear last.

As already indicated, convulsions which appear during hypoglycemic shock are of two distinctly different types. Type A, which may develop as an end result of the phase jerking and twitching described above, is an epileptoid seizure with generalized tonic and clonic movements, and often accompanied by micturition and tongue biting. Type B usually is a complication of later stages of the hypoglycemic reaction, usually not before the fourth hour. The convulsions are of the tetanic or tetanoid type, producing tonic and extensor spasms, outward rotation of the arms and tetanoid posturizing of the fingers.

GENERAL PHYSIOLOGICAL CHANGES

Perspiration, sticky at first but later becoming thin, appears early and abundantly. It often breaks out in repetitive surges and is sometimes so profuse that both the patient and the bedding are literally soaked.

Increased or excessive salivation also is evident early. It is characteristically rather thick and cohesive and can often be drawn out in strings.

The body temperature usually becomes progressively lower as the hypoglycemia becomes more marked. A drop of 4 degrees is fairly common, and Sakel recorded temperatures as low as 89.6 F.

The pulse is commonly erratic. The same patient may show alternately a tachycardia and a bradycardia. We find that, in general, the pulse tends to become slower and weaker as the reaction progresses. Sakel recorded a pulse rate of 34, but this low rate was not achieved in any case of our series.

The respiratory rate also shows considerable irregularity, but as in other types of physiological shock, the usual trend is toward more rapid respirations as the reaction progresses.

Parker,[34] Frostig,[7] and others have studied changes of the autonomic nervous system during hypoglycemic treatment. There appears to be some oscillation between sympathetic and parasympathetic domination. The prevalence of tone of either system seems to result from increased activity of that system rather than from diminished activity of the opposing system.

Immediately after consciousness is lost, it is evident that the sympathetic system is dominant; the face is flushed, pupils are dilated, pulse is increased, and respiration is more rapid.

During typical coma there is a period of apparent parasympathetic tone, then a second interval of sympathicotonia, followed by a reoccurrence of vagotonia usually lasting until termination of the coma. With the appearance of this last phase of parasympathetic tonus, the greatest depth of insulin effect consistent with safety has been reached, and changes beyond this point are apt to be irreversible. Since at this level we may expect protracted coma and central pulse and respiratory complications, it is obvious that the usual termination point of the hypoglycemic development lies somewhat antecedent to this vagotonic phase.

Farrell and Vassaf[35] found that in some patients there was an increase in size of the heart shadow and a simultaneous increase in blood pressure apparently paralleling clinical improvement in the cases reported. They conclude that the change is one of hypertrophy resulting from stimulation of the sympathetic nervous system. They also suggest that some of the mental improvement may be explained by stimulation of the sympathetic nervous system and by the increased circulation resulting from the observed cardiac hypertrophy.

COMPLICATIONS

A variety of complications may develop during the various stages of insulin shock therapy. Few are serious when recognized early, and the majority can be avoided by skillful management. For descriptive purposes we shall consider the complications under three headings: (1) Complications during treatment; (2) complications on termination; (3) complications after termination.

1. *Complications During Treatment.*—Local irritation and allergic reactions are mentioned by some writers. The former should not occur if the locus of injection is properly chosen and changed for each injection. The later, while not common, must be borne in mind. The sensitivity may manifest itself by local anaphylactic erythema and itching or by more generalized allergic phenomena such as pruritus, dermatitis, urticaria, edema of the lids or glottis, tachycardia, or gastrointestinal disturbances. The usual treatment is adrenalin and intravenous calcium, discontinuance of treatment until symptoms clear up, and subsequent use of insulin from another source.

Cardiovascular disturbances, such as irregularities in rate, rhythm, and amplitude of pulse occur in almost every case and, provided the over-all physical status of the patient is satisfactory, we do not consider them of particular importance. However, if the pulse becomes unusually fast during the fourth hour or later, it is interpreted as a signal from a fatigued myocardium and is an indication for interruption of the treatment, a thorough clinical survey of the patient's heart, and a rest of 24 or 48 hours before the next shock.

Cases of acute myocardial failure have been reported, but there have been no failures or threatened failures in our series. We believe that a conservative attitude and careful assay of the state of the myocardium previous to institution of therapy will eliminate patients who are poor risks because of myocardial damage or lack of cardiac reserve. Of course any circulatory emergency calls for immediate termination of the hypoglycemic reaction by intravenous glucose. Strophanthin, .2 to .3 mg. intravenously, is advised in myocardial failure. In circulatory collapse, caffeine, strychnine and coramine are used to effect central stimulation.

Among the respiratory disturbances are aspiration, laryngospasm, respiratory failure, and pulmonary edema. Aspiration of saliva during coma may be prevented by keeping the patient's head turned to one side, and swabbing the throat or using an aspirator if necessary. Laryngospasm may occur as part of the generalized tonic muscle spasm and is an indication for immediate termination of treatment. Central respiratory failure, since it may develop without warning, is one of the most feared accidents of treatment and necessitates immediate termination of the hypoglycemia by administration of intravenous glucose. Pulmonary edema occurs occasionally and when discovered is an indication for termination of the day's treatment. In these cases the intravenous dextrose should be injected slowly.

Central nervous system disorders, especially aphasia, and less frequently hemiparesis, may be seen. The aphasia may be transitorily observed in nearly every case, but occasionally it persists for several hours. The pareses are also transient. The late tetanoid convulsions should be regarded as an undesirable development, which calls for immediate termination of treatment by intravenous glucose. Should they recur several times in the same patient it is usually wise to administer luminal 2 hours before insulin injection, as a prophylactic measure. Status epilepticus may develop in the sensitized or predisposed patient and calls for immediate termination plus the usual treatment of phenobarbital sodium, and if necessary, lumbar

2. *Complications During Termination.*—Vomiting may be a disturbing and sometimes persistent development on attempted administration of glucose orally or through the nasal tube. The addition of 10 to 15 drops of a .1 per cent atropine solution to the glucose will puncture.

usually quiet the hypersensitive stomach. If vomiting is habitual it is recommended that the insulin dosage either be increased or decreased. Obviously, one may also resort to intravenous termination, although we have already expressed our disapproval of routine use of this method.

3. *Complications After Termination.*—Fairly frequently we find that a patient will relapse into unconsciousness after being partially or completely aroused following administration of his sugar solution. No particular importance is attached to this relapse if it lasts no longer than 30 minutes. The reaction is thought to result from pancreatic overproduction of insulin in response to the presence of the large amount of sugar in the digestive tract. In our practice we give 10 to 15 Gm. of dextrose intravenously and thus terminate the relapse if it extends beyond our rather arbitrarily established 30 minute deadline.

Occasionally we find a patient who does not arouse after swallowing his sugar. This is thought to be due to a change in the ability of the intestinal mucosa to absorb glucose. In such instances, we also resort to intravenous glucose after our 30 minute deadline.

In rare instances, the use of intravenous glucose may not produce termination of the reaction and the patient goes into a protracted coma. This complication which may progress to a fatal termination, taxes the fortitude and ingenuity of the physician. The patient remains in deep coma, pale or cyanotic, with a thready and very rapid (occasionally very slow) pulse, and a stertorous (sometimes Cheyne-Stokes) respiration. Vomiting is common and convulsions are often seen. Some, but not all, patients may show a mild elevation of temperature. When such a reaction of prolonged coma occurs, one must, of course, first determine whether the patient is still hypoglycemic, or whether the coma persists in the presence of a normal (or even elevated) blood sugar. Immediate blood sugar determination will answer this problem and indicate whether additional intravenous glucose is needed. The administration of at least 100 mg. of thiamine hydrochloride may be helpful and can do no harm. Freudenberg[36] reports success with this type of therapy. As previously indicated, we use vitamin B routinely and we believe it aids in preventing the possibility of prolonged coma. Adrenalin chloride has also been used, although more recent writers have condemned the use of adrenalin during coma. Wortis and Lambert[37] used citrated blood transfusion successfully in 3 successive cases, and the procedure should be considered when possible.

A final complication, and one which is fairly common, is the so-called delayed reaction or "after-shock." This reappearance of drowsiness, sweating, tremor, and weakness may appear several hours after the patient has left the shock room. For this reason, as was stated earlier, the patients should be kept under observation throughout the entire treatment day. They are also instructed to notify a nurse at once if they feel weak or drowsy. All nurses and psychiatric aides are instructed to keep close watch of these patients, and sugar and fruit juices are kept available for immediate use if such delayed reaction develops.

EFFECTS OF HYPOGLYCEMIA

Physiological Effects.—Investigations of Himwich[38] and his associates, Loman,[39] and others have tended to confirm the belief that the hypoglycemic coma of insulin-treated patients is due to brain starvation resulting from lack of glucose. Many investigators have advanced the conception that glucose is the chief if not the only fuel of the brain. Electroencephalographic studies during coma indicate that the alpha waves tend to diminish considerably in amplitude or even to disappear as the sugar level diminishes, and to reappear with the absorption of glucose.

The blood picture during hypoglycemia shows little cytological change. A mild leukopenia may occur early, usually changing later to a mild leukocytosis. The erythrocyte count, hemoglobin, and sedimentation rate are unaltered. The blood chemistry shows more variation. Blood phosphates decrease by 25 per cent. Chlorides, calcium, and potassium also show a diminution, and there is a shift toward the alkaline side.

Some of the heart changes which occur during hypoglycemia have already been mentioned under general physiological changes. Systolic pressure usually rises 10 to 15 mm. and diastolic pressure drops correspondingly, producing an increase in pulse pressure of 15 to 30 mm. Numerous workers have reported electrocardiographic changes such as flattening of the T notch, widening of the QRS complex, a drop in the middle portion, and disturbances of the conduction system of the heart. These changes are reversible and disappear within a few hours after termination of shock.

Changes in the autonomic nervous system have also been discussed under general physiological changes. There is an oscillation between sympathetic and parasympathetic dominance. The biochemical changes and the reactions of the organs controlled by the autonomic nervous system indicate that insulin treatment vitally affects the vegetative system.

Histopathological Changes.—Within the limits established for safe and successful insulin treatment, we believe that any changes in histopathology of the central nervous system are reversible. Severe or prolonged coma undoubtedly induces irreversible pathological changes, but in our series we have been able to avoid protracted coma, and have not observed any clinical evidence of brain damage. Jessner and Ryan[2] state "It is possible that a certain amount of brain damage is of therapeutic value," but at present we are unwilling to concede that possibility when the area of damage is not selected, which would undoubtedly be true of damage during hypoglycemia. Perhaps Jessner and Ryan were unconsciously drawing a parallel with the selective brain "damage" of psychosurgery.

Mental Changes.—The mental changes occurring with progression of the hypoglycemic reaction were described in detail earlier in this monograph under the heading of "Clinical Symptoms." During the precomatose phases the patient's temperament and disposition may show temporary alterations, usually a swing from the prevalent manifestations to expressions quite opposite in type; thus the stuporous catatonic patient becomes alert, the excited patient shows a marked change in expressiveness and accessibility. Such incidents should be used by the physician to develop the necessary physician-patient relationship.

The subjective experiences during the phase of coma are varied. To many patients the situation represents death, and the awakening may be interpreted as a rebirth. In certain paranoid reactions, the treatment may represent a realization of the patient's persecutory delusions. In other instances, patients have reported disturbances of sensory perception, and colorful dreams and fantasies. It may be safely stated that part of the success of the treatment is dependent upon the patient's

symbolic interpretation of the entire therapeutic situation, especially the phase of coma.

The "gemutlicheit" of the patient on being aroused was described earlier. At this time he is alert, warm, interested in body functions, and usually more accessible. This period should also be utilized by the physician to further establishment of a transference.

This phase of accessibility may be transient, and not necessarily related to the final therapeutic result. This end result shows considerable variability in respect to both the degree and the permanence of the change. In some patients, no change can be observed through the entire series of treatments. We should note here, however, that in 2 patients of our series, although no changes were immediately apparent during or at termination of insulin therapy, a progressive improvement became evident about a month later. These have been considered "delayed recoveries," but we are by no means certain of the part played by the insulin treatment in the ultimate therapeutic result. The ideal response is one of complete remission of symptoms with development of insight. Cases of this type usually showed increased periods of accessibiltiy, with gradual development of stability. As he increases his reality contacts, the interest in and preoccupation with delusions, hallucinations, and general fantasy formation becomes progressively diminished. Psychotic dynamisms are abandoned, in the majority of instances without development of a real insight into the psychosis. Other patients show a change in social objectivity and are able to make partial adjustments in their former social environments, but do not seem able to give up their psychotic dynamisms entirely. Still others show little change in social response or accessibility, but become less hostile and negativistic and so are more manageable. Some patients of this type can then be cared for at home under proper supervision.

At the present time we are unable to present any satisfactory physiological or psychological reason for the apparent effectiveness of insulin therapy. We have mentioned briefly that the symbolic interpretation of the coma situation and the development of rapport and transference seem to be important psychologically, but they do not explain how or why the insulin shock therapy influences the psychosis.

Sakel[6] attempted a complicated physiological hypothesis based on "short circuits" and "failing bindings" of the intracellular connections. The hypoglycemic state inhibits these abnormal connections and on termination of the hypoglycemia, the older, normal (but previously "short circuited") connections are reestablished.

The organicists advanced the view that the result was due to modification of the brain metabolism or alteration of the function of the autonomic nervous system.

It is evident that all these ideas may have some factual basis, but singly or collectively they do not answer adequately the question as to the mechanism of improvement. The psychosis is a response of the whole organism and any improvement, regardless of cause, must also be a response of the whole organism. We believe that only by application of such a biodynamic concept can a full answer to the question be found, but in the light of our present knowledge we can only conclude our speculations with the remark that we have no proper explanation of the favorable results obtained.

We can say that insulin treatment though a not wholly understood mechanism changes the patient so that he is able to turn his attention and interest away from his narcissistic isolation and develop better intrapersonal relationships. This is not to say that insulin therapy "cures" schizophrenia; it does not. With the change in accessibility produced by insulin the patient is, in successful cases, able (either alone or with the assistance of the psychiatrist) to again develop satisfactory methods in dealing with reality. The importance of the help of the psychiatrist is attested by the generally poorer results in hospitals where psychotherapy is not employed.

LENGTH OF TREATMENT

Neither the degree nor the rate of improvement seems to have any correlation with the length of treatment. Pollock[40] has stated that duration of treatment has no relation to the achievement of results. Blumenthal[29] is of the opinion that, although the production of fifty to sixty comas over a period of 2 to 3 months is useless, an insulin cure with less than ten comas is insufficient. He believes that if even a chronic case does not respond after thirty comas, continued treatment will not bring any beneficial result. This implies a limit of therapeutic efficiency varying between ten and thirty comas. In 1938 after reviewing 1039 cases Malzberg[41] concluded that the rate of improvement was highest in those receiving twenty to twenty-nine injections and later Gralnick's[42] survey (1945) confirmed these findings. In 1946, Goldfarb and his associates,[43] reporting results of shock therapies in military personnel, stated that they usually terminated treatment if there was no remission with twenty comas. We are inclined to agree with these opinions. In our series, the greatest number of successive treatments given a patient was sixty. In most instances, patients who will ultimately progress to satisfactory clinical recoveries will have shown favorable signs by the time they have had twenty comas. The usual period of treatment covers 10 weeks with five treatments a week. Satisfactory response is often achieved earlier and in such instances therapy is terminated after perhaps twenty comas, but the patient is kept under close supervision and observation for at least 3 weeks, and therapy is resumed if any signs of relapse appear.

Occasionally a patient who has shown no change during twenty-five or more comas will begin to show late changes after 7 or 8 weeks. Such cases may need to be carried on slightly beyond the usual limit of 10 to 12 weeks in order to achieve optimum results.

PART II—THERAPEUTIC RESULTS AND COMPARISONS

RESULTS

Unfortunately, while statistics are helpful in evaluating results of any therapeutic procedure, the comparison of statistical summaries does not present the whole picture. So long as the subjects and the workers are human beings, two variables will continue to be introduced into every statistical figure: the prejudice of the worker and his opinion of the subject. Ross and his associates[44] advanced certain criteria for uniform evaluation of results which would at least aid in standardizing the objective findings. He proposed four categories: 1. Recovered: This category would include only those patients who have become entirely symptom free and have acquired insight regarding their illness. (Insight means that the person must fully realize that he has been mentally ill and that his symptoms were a part of this illness. He must also be able and willing to speak freely and objectively of this illness in detail

and with normal affect, and he must be able to adjust well in the community at his prepsychotic level.) 2. Much improved: This would include those patients who become entirely symptom-free, but whose insight, as defined above, is lacking or incomplete, although they are able to adjust in their former social group at or near the prepsychotic level. 3. Improved: This would be applied to those patients whose symptoms are incompletely alleviated, but are less distressing so that they are able to make a definitely better adjustment than before treatment. 4. Unimproved: This, obviously, is applied to those patients who are not benefited by treatment.

While we agree that uniformity in classification is highly desirable, we are not wholly in accord with Ross' method. We have found that many patients who make excellent and apparently permanent recoveries and are able to return to their former activities will be unable to develop full insight into the psychotic episode. This lack of insight does not seem to impair their efficiency nor does it appear to be a factor in producing relapses. In other words, we do not find that presence of absence of insight in otherwise recovered patients constitutes a sufficient reason for placing them in separate categories. We have therefore combined the first two of Ross' categories under the "Recovered" group.

In our series of 80 insulin-treated cases, we found that 13 or 16.2 per cent showed good recoveries and an additional 32 patients or 40 per cent were definitely improved as a result of treatment. Therefore we may conclude that we obtained favorable results in 45 patients or 56.2 per cent of all cases. (Fig. 6) This compared favorably with the average recovery rate of 12.7 per cent reported by Ross and his coworkers.[44]

As to type of schizophrenia, 23 were classified as catatonic. This group showed the highest proportion of improvement with 5 recoveries or 21.7 per cent and definite improvement in an additional 9 cases or 39.1 per cent. The total number of catatonic patients showing positive results was therefore 14 or 60.8 per cent. Of the group of 43 patients of the paranoid type, 6 or 13.9 per cent recovered and 17 or 39.5 per cent were considered improved, making a total of 23 patients or 54.4 per cent in whom favorable results were obtained. Fourteen patients of our series were hebephrenic. Of these, 2 patients of 14.2 per cent recovered and an additional 6 patients or 42.8 per cent improved making a total of 8 patients or 57 per cent who showed favorable reactions to therapy.

Our study of the correlation between duration of illness and recovery is perhaps the most significant of all the charts. It further emphasizes a point made by all other psychiatrists who have made similar surveys: it is of utmost importance that the patient be hospitalized and treated early. Examination of the "Duration of Illness" chart reveals that 11 of our 13 recoveries were obtained in patients who had been ill for a period of 6 months or less! In all, 23 patients or 28.7 per cent of the series had been ill 6 months or less when hospitalized. Of these, 11 or 47.8 per cent recovered and 7 or more or 30.4 per cent improved, making a total of 16 or 78.2 per cent who responded favorably to treatment. Of the 13 patients or 16.2 per cent who were ill 6 months to 1 year prior to treatment only 1 or 7.7 per cent recovered, although an additional 6 or 46.1 per cent improved, giving 7 or 53.8 per cent with whom favorable results were obtained. There were no recoveries among the 12 patients or 15 per cent who were ill between 1 and 2 years prior to treatment,

	Total No.	%	Recovered No.	%	Improved No.	%	Unimproved No.	%	Total No.	%	Recovered No.	%
TOTAL RESULTS	80	100	13	16.2	32	40	35	43.8	1952	100	336	34
SCHIZOPHRENIC TYPE												
Catatonic	23	28.75	5	21.7	9	39.1	9	39.1	160	10.0	71	44.4
Paranoid	43	53.75	6	13.9	17	39.5	20	46.5	198	39.7	52	26.2
Hebephrenic	14	17.5	2	14.2	6	42.8	6	42.8	594	29.3	211	35.5
Mixed or Unclassified									50	5.0		
DURATION of ILLNESS												
6 months or less	23	28.7	11	47.8	7	30.4	5	21.7				48
6 months to 1 year	13	16.2	1	7.7	6	46.1	6	46.1				46
1 to 2 years	12	15.0	0	0.0	8	66.6	4	33.3				45
over 2 years	32	40.0	1	3.1	11	34.3	20	62.5				28
AGE												
Under 20	9	11.2	1	11.1	5	55.5	3	33.3	144	14.4		
20 to 30	37	46.2	7	18.9	15	40.5	15	40.5	345	34.5		
30 to 40	23	28.7	5	21.7	8	34.7	10	43.6	313	31.3		
over 40	11	13.7	0	0.0	4	36.3	7	63.6				
SEX												
Male	35	43.75	4	11.4	15	42.8	16	45.7	516	31.6	291	38.7
Female	45	56.25	9	20.0	17	38.0	19	42.0	686	48.6	148	32.4
FOLLOW-UP	Total Reporting		Recoveries Reporting		Improved Reporting		Unimproved Reporting					
	51	38.8	10	77	15	47	6	27.1				
Status retained 2 years	17		9	90	8	53.3						
Status retained over 2 years	15		7	70	8	53.3						
Status improved	9				9	33.3						
Relapses to July 1946	10		3	30	6	60.0						
Died	1				1	6.6						

Fig. 6

but we were able to produce some improvement in 8 or 66.6 per cent of these patients. The patients who were ill over 2 years were largest in number but smallest in regard to favorable response. Out of 32 cases or 40 per cent, only 1 or 3.1 per cent of the group recovered, while 11 more or 34.3 per cent showed improvement, making the total of favorable results in this age group 12 patients or 37.4 per cent.

The study of the relations between age and response to therapy brings out two important facts: (1) The age of greatest incidence is the third decade of life, and (2) the percentage of unimproved patients rises with each decade, which might be more strikingly stated thus: The older the patient is when the schizophrenic reaction develops, the poorer will be his chances of improvement under insulin therapy.

Examining the chart showing the relationships between sex and response to therapy, we see that in our series females, with 9 recoveries or 20 per cent, responded better than males, with 4 recoveries or 11.4 per cent. This is not in accord with most published reports; the majority of statistical analyses show better results in males. It is also interesting to note that the females outnumbered the males in this series 45 to 35 although most psychiatric texts state that the incidence of schizophrenia is higher in males.

PROGNOSIS

Our survey indicates that no other factor is so important in prognosis as is the duration of the patient's illness. This is wholly in accord with all other reports and has become so important in our minds that when considering treatment we are apt to ask, "How long has the patient been ill?" before considering any other facts of the patient's history.

In summarizing our results from the viewpoint of prognosis we find that the female patient of the catatonic type, under 30 years of age who has been ill less than 6 months has the most favorable prognosis. Cheney and Clow,[45] after a detailed survey of 50 cases, concluded: "The dementia praecox patient who has the best outlook for recovery or improvement following

insulin therapy is a male under the age of 30 who has had a comparatively adequate prepsychotic personality, whose psychosis had an abrupt onset with a definite precipitating cause. He will have been sick less than a year before institution of treatment; he will have shown an excited catatonic state."

RELAPSE

We have already mentioned the fact that the early enthusiasm over therapeutic results with insulin was soon tempered by sober, scientific second thoughts in the form of follow-up studies, with records of frequent relapses. As early as 1938, workers were submitting reports which indicated that the immediate improvement in response to insulin therapy was frequently of a temporary nature. Although many psychiatrists were still reporting recovery rate of from 56.5 to 60 per cent, more analytical observers were finding that "follow-up studies reveal that improvement is more apparent than real." From Horwitz, Blalock and Harris's[46] resume of the literature we have exerpted the following reports of relapses: Beno: 5 relapses out of 35 cases; Frostig: 4 relapses out of 27 cases; Cameron and Hoskins: 8 of 20 treated patients; the authors of the resume: 8 of 31, with the notation that they think it reasonable to assume that there will be others.

More recently, Bond and Rivers[9] of Philadelphia and Gralnick[42] of New York have submitted 7-year surveys with follow-up results. Of 49 cases which Bond and Rivers were able to follow for 5 years, only 22, or 41 per cent were able to maintain their immediate post-treatment status. This indicates that 59 per cent showed partial or total relapses. Gralnick states that in his series 73 per cent of the total paroled patients were back in the hospital 6 years later.

These reports indicate that under medical care about 25 or 30 per cent of patients showing remissions after insulin therapy are able to maintain their improvement. The results of follow-up studies in our own series contrasts rather favorably with these findings. (See Fig. 6.) We were able to follow 10 of our 13 patients who recovered for 5 years or longer and at last report, 7 out of the 10 or 70 per cent retained their status. Results were also comparatively impressive in follow-up of improved cases. Out of 32 improved patients, we were able to follow 15 and found that 8 or 53.3 per cent had at least retained their discharge status, while 5 of this group of 8, or 33⅓ per cent of the total of 15 cases, had showed additional gain.

Cheney and Clow[45] reported in 1941 that their series indicated that with insulin therapy supplemented by psychotherapy, occupational therapy, and other psychiatric therapy suitably applied 16 per cent of schizophrenic patients may be expected to be recovered 6 months to 2½ years after treatment. In a personal communication in 1944, the superintendent of the state hospital at Columbus, Ohio,[47] stated that dementia praecox is curable in 14 to 16 per cent of cases with the use of insulin.

It should be emphasized at this point that like Cheney and Clow[45] we believe that our results are due in part to factors other than the insulin therapy. All our patients receive specific osteopathic care and treatment throughout their hospitalization period. Since this is the one common factor present in all our cases which is not present in cases treated by the older schools of practice, it is not unreasonable to conclude that our manipulative procedures are a definite aid in producing favorable responses.

It is necessary to state also that a large number of the patients who were ill over 2 years were chronic patients who were given insulin therapy when it was first instituted at our hospital. These were patients who had not responded to osteopathic and psychiatric therapy and consequently had a very poor prognosis prior to treatment. Adding these cases to our series considerably lowers our total percentage of insulin recoveries.

A third fact must be considered in evaluating the series: When our patients showed good early response to osteopathic and psychiatric therapy, they were usually not given insulin therapy. Therefore, this series of cases represents to some extent a report of response to insulin and osteopathic therapy in cases which were not showing satisfactory response to our more conservative regimen.

COMPARISON WITH CONTROL GROUP

The importance of the above statements and the value of osteopathic manipulative therapy become more apparent when the series is compared with a control group not treated with insulin. The cases used as a control group are the 1000 dementia praecox patients reported in an analytical survey by Dr. F. M. Still of this hospital in 1933.[10] Both insulin-treated patients and controls were thus subjected to the same type of management and were in the same environment during treatment.

In the control group (see Fig. 6) 334 patients or 35 per cent were classified as recovered, which is contrasted with the 16.2 per cent of insulin-treated patients in whom recoveries were obtained. This marked difference in results similarly appears in the analysis of the relation between type of schizophrenia and response to therapy. The catatonics of the control group showed recovery in 44.4 per cent of cases, while the insulin treated catatonics showed a 21.7 per cent recovery rate. Of the paranoid patients in the control group 26.2 per cent recovered, but only 13.9 per cent of the insulin-treated paranoics recovered. The hebephrenic type in the control group showed a recovery rate of 35.5 per cent, which contrasts with the recovery rate of 14.2 per cent in the hebephrenic cases of the insulin-treated group.

While studies of the relation between duration of illness and response in both groups emphasize the importance of early hospitalization, comparative results again favor the control group. Those of the insulin group who had been ill less than 6 months showed a recovery rate of 47.8 per cent, while the similar control group showed a 68 per cent recovery rate. With increased duration, the insulin group shows a more rapid drop than does the control group, and we find the latter showing a recovery rate of 60 per cent in patients who were ill for a period of 6 months to 1 year, while the same class of insulin-treated patients showed only 7.7 per cent recovery rate. Of those patients who had been ill for a period of from 1 to 2 years, the controls' recovery rate was 45 per cent and the insulin group showed no full recoveries. The patients who were ill longer than 2 years had a recovery rate of 20 per cent in the control group and only 3.1 per cent in the insulin-treated group.

The remarks which immediately preceded this comparison must be recalled for proper evaluation of the statistics. On the surface, results in the control

group appear to be so far superior to those in the insulin-treated group that one might wonder why insulin therapy was used at all. It will be recalled, however, that earlier mention was made of the fact that a number of osteopathic therapeutic failures were treated with insulin when this method was first inaugurated at our hospital. Of course this reduced the total of insulin successes considerably but it also proved to our staff that a patient with a poor prognosis under osteopathic management tends to have a poor prognosis as regards insulin therapy, and emphasized that early treatment is of utmost importance.

In the interest of accurate evaluation it should also be stated that had we routinely used this form of treatment on all our schizophrenic patients, a higher percentage of recoveries would undoubtedly have been credited to insulin. Instead our approach to insulin therapy was rather conservative. As indicated earlier, if our patient showed satisfactory progress under osteopathic and psychiatric management, he was usually not given hypoglycemic shock therapy.

CONCLUSIONS AND COMMENT

Our study of individual patients in both the insulin-treated and the control groups together with analysis of our own statistics and those submitted by other workers has led to the formulation of opinions which we believe are reasonably well justified.

1. Prognosis depends chiefly upon the length of illness before hospitalization.

2. Patients who have a poor prognosis under conservative osteopathic management have a poor prognosis under insulin therapy.

3. Insulin therapy will hasten the appearance of a remission which would later result from osteopathic management.

4. Insulin therapy will sometimes reach the patient with a doubtful prognosis or one who shows poor initial response to osteopathic management.

5. Osteopathic psychiatry and insulin therapy used in conjunction produce initial responses which compare favorably with responses reported in current publications by psychiatrists of the older schools of practice.

6. Our series of controls showed a lower rate of relapse than the insulin-treated group, tending to indicate that osteopathic psychiatric management produces more satisfactory and more permanent recoveries.

7. Follow-up studies of our insulin-treated group showed a percentage of relapses which is significantly lower than that reported by the majority of workers. This supports the foregoing opinion that manipulative therapy adds to the quality and permanence of the therapeutic response.

A few summarizing comments seem pertinent. We believe that insulin therapy, while still empirical treatment, shows sufficient clinical specificity to be added to our therapeutic armamentarium. We retain the conviction, however, that osteopathic therapy should remain the foundation of our regimen of treatment and that other measures should be regarded as adjuncts. This conviction is justified, we believe, by the comparative results of this report and by the gratifying responses of psychiatric patients to a fundamentally osteopathic regimen throughout the years. Here, we are certain, is evidence of the importance of the osteopathic concept in the healing art.

ACKNOWLEDGEMENT

The writer wishes to acknowledge his indebtedness to Nannette Moore and Ruth Seaney of the office force of Still-Hildreth Osteopathic Sanatorium for invaluable assistance in collecting the statistics and preparing the manuscript for this article.

Still-Hildreth Osteopathic Sanatorium

REFERENCES

1. Dunn, F. E.: History of the treatment of mental diseases. Archives of J. Francis Smith Neurological Society, Philadelphia College of Osteopathy, Philadelphia.

2. Jessner, L., and Ryan, V. G.: Shock treatment in psychiatry: A manual. Grune & Stratton, New York, 1941.

3. Klaesi, J.: Communications and discussion. Am. J. Psychiat. (Supp.) 94:334-335, May 1938.

4. Sakel, M.: The pharmacological treatment of schizophrenia. Nervous and Mental Disease Publishing Co., New York, 1938.

5. Steck, H.: Le traitement des agitations psychosiques aigues (delire et agitations catatoniques, delirium tremens) par l'insuline, in Congres des Medicines Alienistes et Neurologistes de France, 1933, pp. 452-455.

6. Sakel, M.: Neue Behandlungsmethode der Schizophrenie. Verlag Moritz Perles, Vienna, 1935.

7. Frostig, J. P.: Clinical observations in insulin treatment of schizophrenia; preliminary report. Am. J. Psychiat. 96:1167-1190, March 1940.

8. American Journal of Psychiatry, Vol. 94 (Supplement), May 1938.

9. Bond, E. D., and Rivers, T. D.: Insulin shock therapy after 7 years. Am. J. Psychiat. 101:62-63, July 1944.

10. Still, F. M.: Dementia praecox. J. Osteop. 40:382, Sept.; 441, Oct.; 534, Dec. 1933; 41: 15, Jan.; 73, Feb.; 161, April 1934.

11. Freudenberg, R.: Use of vitamin B and preparations of the suprarenal cortex in insulin shock therapy. Am. J. Psychiat. (Supp.) 94:317-319, May 1938.

12. James, G. W. B.; Freudenberg, R., and Cannon, A. T.: Insulin shock treatment of schizophrenia. Lancet 1:1101-1104, May 8, 1937.

13. Ross, J. R., and Malzberg, B: Review of results of pharmacological shock therapy and metrazol convulsive therapy in New York State. Am. J. Psychiat. 96:297-316, Sept. 1939.

14. Katzenelbogen, S.: Critical appraisal of "shock therapies" in major psychoses; insulin. Psychiatry 2:493-505, Nov. 1939.

15. Frostig, J. P.: Experiences with insulin therapy in schizophrenia, with special references to clinical problems. Am. J. Psychiat. 94:220-226, May 1938.

16. Jones, M.: Intravenous insulin in treatment of schizophrenia. Lancet 2:361, Sept. 21, 1940.

17. von Braunmühl, A.: Shocklinie und Hypoglykämielinie. Zugleich ein Bericht über 3 Jahre Zickzackmethode bie der Insulinshockbehandlung. Ztschr. f. d. ges. Neurol. u. Psychiat. 169:413-436, 1940.

18. Beno, N.: Observations and results obtained in insulin treatment of 52 psychotic patients. Am. J. Psychiat. (Supp.) 94:213-219, May 1938.

19. Bennett, C. R., and Miller, T. K.: Observation on treatment of mental cases with sub-shock doses of insulin. Am. J. Psychiat. 96:961-966, Jan. 1940.

20. Reese, H. H.: Hypoglycemia and convulsive therapy in schizophrenia; clinical observations and results. J. Am. M. A. 112:493-496, Feb. 11, 1939.

21. Wiesel, B.; Spotnitz, H., and Polatin, P.: Clinical observations on the effect of intravenous insulin in the treatment of mental disease; preliminary report. Dept. of Psychiatry, New Jersey State Psychiatric Institute and Hospital Manuscript, 1938.

22. Polatin, P., and Spotnitz, H.: Evaluation of effects of intravenous insulin technique in treatment of mental diseases; follow-up study of group of patients treated with intravenous injections of unmodified insulin and zinc-insulin crystals. Am. J. Psychiat. 99:394-397, Nov. 1942.

23. Sandison, R. A., and McGregor, J. S.: Year's experience of intravenous insulin in hypoglycaemic shock treatment of schizophrenia. J. Ment. Sc. 88:387-406, July 1942.

24. Polatin, P., and Spotnitz, H.: Ambulatory insulin shock technique in treatment of schizophrenia; evaluation of therapeutic effects. J. Nerv. and Ment. Dis. 97:567-575, May 1943.

25. Tomlinson, P. J., and Ozarin, L. D.: Ambulatory insulin therapy; report of 52 cases. Psychiat. Quart. 16:167-173, Jan. 1942.

26. Kraulis, W.: Protracted shock in the treatment of schizophrenia and results of therapy in Riga, Latvia. Am. J. Psychiat. (Supp.) 94:324-328, May 1938.

27. Wortis, J.; Terris, M., and Korr, I. M.: Treatment of psychoses with long protracted insulin coma. Am. J. Psychiat. 99:391-393, Nov. 1942.

28. Rivers, T. D., and Rome, H. P.: Prolonged insulin coma in treatment of schizophrenia. Arch. Neurol. & Psychiat. 51:550-556, June 1944.

29. Blumenthal, K.: Insulin, cardiazol and electroshock treatment in Palestine during the last five years. J. Nerv. & Ment. Dis. 101:332-346, April 1945.

30. McGregor, J. S., and Sandison, R. A.: Insulin treatment of schizophrenia in wartime. Brit. M. J. 2:310-312, Nov. 1940.

31. von Angyal, L.: Uber die motorischen und tonischen Erscheinungen des Insulinshocks. Ztscher. f. d. ges. Neurol. u. Psychiat. 157:35-80, Jan. 1937.

32. vonAngyal, L.: Uber die Verschiedenen insulinshotypen und ihre neuropsychopathologische Bedeutung. Arch. f. Psychiat. 106:662-680, July 1937.

33. Wiedeking, J.: Selbstbeobachtungen in hypoglykamischen Zustand. Ztschr. f. d. ges. Neurol. u. Psychiat. 159:417-445, 1937; abstracted

in Year Book of Neurology, Psychiatry, and Endocrinology, 1937, Year Book Publishers, Chicago, pp. 402-404.

34. Parker, C. S.: Observations on autonomic functions during hypoglycaemic treatment of schizophrenics. J. Ment. Sc. 86:645-659, July 1940.

35. Farrell, M. J., and Vassaf, E.: Effect of insulin shock on heart and blood pressure in treatment of schizophrenia. Arch. Neurol. & Psychiat. 43:784-791, April 1940.

36. Freudenberg, R.: Ueber die Verwendung von Vitamin B_1 und B_2 bei der Insulinschocktherapie der Schizophrenie. (Vorläufige Mitteilung). Wien. klin. Wchnschr. 50:535-536, April 1937.

37. Wortis, J., and Lambert, R. H.: Irreversible or hypoglycemic insulin coma; its cause and its response to blood transfusion. Am. J. Psychiat. 94:153-158, July 1937.

38. Himwich, H. E., *et al*: Changes in cerebral blood flow and arteriovenous oxygen difference during insulin hypoglycemia. Proc. Soc. Exper. Biol. & Med. 45:468-469, Oct. 1940.

39. Loman, J.: Sugar and oxygen metabolism of brain during and after insulin hypoglycemia. Arch. Neurol. & Psychiat. 45:282-288, Feb. 1941.

40. Pollock, H. M.: Statistical study of 1140 dementia praecox patients treated with metrazol. Psychiat. Quart. 13:558-573, July 1939.

41. Malzberg, B.: Outcome of insulin treatment of one thousand patients with dementia praecox. Psychiat. Quart. 12:528-553, July 1938.

42. Gralnick, A.: Seven year survey of insulin treatment in schizophrenia. Am. J. Psychiat. 101:449-452, Jan. 1945.

43. Goldfarb, W., *et al*: Experiences with pharmacologic shock therapies in "psychoses" in military personnel. Am. J. Psychiat. 102: 602-608, March 1946.

44. Ross, J. R., *et al*: Pharmacological shock treatment of schizophrenia; two year follow-up study from New York State Hospitals with some recommendations for future. Am. J. Psychiat. 97:1007-1023, March 1941.

45. Cheney, C. O., and Clow, H. E.: Prognostic factors in insulin shock therapy. Am. J. Psychiat. 97:1029-1039, March 1941.

46. Horwitz, W. A.; Blalock, J. R., and Harris, M. M.: Occurrence of relapses in patients treated with insulin hypoglycemic shock. Psychiat. Quart. 12:716-721, Oct. 1938.

47. Bateman, J. F.: Personal communication, 1944.

Electroshock in Clinical Practice

C. W. NORTON, D.O.
Glendale, Calif.

Electroshock therapy is one of the modern methods of physical treatment in psychiatry. Some psychiatrists maintain that it is the specific, permanent, all-inclusive therapy. Sometimes it is used promiscuously in the treatment of many types of mental and nervous disturbances. It appears to have taken a place in psychiatric therapeutics such as the sulfa drugs and penicillin have in general medicine.

Some practitioners take an extremely skeptical view of the ultimate gain and final outcome of this therapy. They look with horror on the increasing number of patients exposed to anywhere from 1 to 100 meetings with the electric current or convulsive drug. Their frequent comments are likely to be that it is a "lazy man's" method of treatment or a sign of psychotherapeutic inadequacy on the part of the practitioners. They fail to see, perhaps justifiably, how a physiological convulsion can alter or correct a poorly matured or poorly adjusted psychobiological organism. Unfortunately, it is true that too many of these patients are not given psychotherapy at any time, with the final outcome hinging entirely upon the effect of the shock.

In spite of a lack of agreement among authorities on indications for its use, shock therapy seems to have found some place in the treatment of the depressions and selected cases of schizophrenia as an adjunct to psychotherapy. However, they seem to agree that electric shock is the most efficient, safest, and most practical form to use.[1,2,3] The final outcome of the debate and whether shock will gradually lose out is a question that can only be decided by the future.

The chief purpose of this paper is to describe the rationale and technic of electroshock therapy used by the Eighth Street Clinic, method of selection of patients, technical procedures, and follow-up.

SELECTION OF PATIENTS

Patients are selected from those who have had a complete psychiatric and physical survey and where the indications, as we see them, seem to call for shock therapy. These patients, as found in other institutions, are those suffering from depression, involutional melancholia, depressed stages of the manic-depressive psychoses, agitated psychasthenia and certain selected cases of mild schizophrenia. Since there are no means of controlling the activities of the patient while not in the Clinic, it is impossible to consider patients that are assaultive, excessively ill, or noncooperative.

Myerson[4] and Beres[5] are among those who have pioneered in the use of electric shock on ambulatory cases. There are many private practitioners who attempt shock therapy in their offices but, because of the ever-present danger of complications, it would seem best to limit this approach to the clinic or hospital outpatient departments. Recovery beds are necessary; a well-trained team of assistants and facilities for dealing with the infrequent complications should be essential factors.

A release of responsibility for the Clinic is required routinely in all cases. The aims, technic, and probable after-effects are carefully explained to the family before this release is presented. Very few have refused to consent to this procedure. It is important to emphasize to the family and the patient that the shock therapy constitutes only one phase of the treatment and that psychotherapy must be used for completion of the treatment.

TECHNICAL PROCEDURES

In our practice, full convulsive seizures are induced once or twice weekly, depending upon the patient, twice weekly being preferred.

A padded straight table is used for the actual shock and the patient is allowed to be there until able to walk to the recovery room. This has been found more satisfactory than giving the treatment on the hospital bed because the patient can be restrained more easily and there is less giving of the support which tends to lessen the danger of fractures and dislocations.

There are usually three staff members in attendance. One arranges the electrodes and directs the current. The others, one to each side of the table, restrain the patient by placing one hand on the shoulder and one on the hip and firmly, but without pressure, prevent any severe body movement during the seizure. A pillow is placed under the back from the sacrum to the upper dorsal area and a mouth gag of rubber is inserted between the teeth. At times, when there is unusual clonic contracture of the legs, the one who pulls the switch, after removing the electrodes, moves to the foot of the table and supports the legs above the table surface.

Bitemporal electrodes are used and the machine is of the alternating current type. A saline paste is used for contact. The voltage and amperage depend on the individual patient as it is found that some react satisfactorily to lower doses than others. Occasionally,

the patient will not react completely to the shock and, if so, it is repeated immediately. The second shock invariably is sufficient to cause a full seizure.

Contrary to the procedure adopted by Fetterman,[6] the patient is allowed to recover without the companionship of a relative but a trained nurse watches to avoid any abnormal behavior. There is no attempt at post-shock suggestion or therapy and the patient usually goes home within several hours. It has not been found necessary to use such drugs as curare, intocostrin, or other muscle relaxers and, in our over 500 treatments, there has been only one case of injury. This was in an especially muscular male who suffered several fractured vertebræ which healed without immobilization or any severe symptoms.

In patients who are especially apprehensive and unable to relax, it has been our practice to use 3 cc. of 5 per cent sodium pentothal intravenously. It is imperative that the patient be as relaxed as possible and the whole procedure will progress better if the physician can catch the patient while talking and concentrating on something other than the shock to come. Most cases requiring a second shock are those where the patient is tense and awaiting the shock.

Treatments are continued as long as the symptomatic picture indicates their need. The patient is questioned carefully and the parents or other relatives are also interrogated before each treatment and instruction is given for them to watch for signs of excessive confusion or other deteriorating symptoms that might indicate an adverse reaction. It is easily possible to drive certain early schizophrenics, for instance, into full-blown psychoses.

The use of atropine premedication to prevent excess production of saliva and respiratory excretion, as advocated by Wilbur,[7] has been considered but no cases have been observed which warranted this as a routine procedure. Some authorities feel that sodium amytal as a preshock medication is preferable to sodium pentothal because of the latter's reputation as a respiratory depressant. However, with the small amounts used, there has never been the slightest difficulty with the use of sodium pentothal, and the shorter duration and more rapid induction seem to be in its favor. In our experience there has been a great reduction of post-convulsive hyperexcitability following the adoption of routine pentothal premedication despite the nonuse of curare or oxygen. Apparently there is little interference with the intensity of the convulsion by the relatively small doses of pentothal used.

FOLLOW-UP

In selected cases, following the shock therapy, psychotherapy is begun and continued as long as indicated. It has been found that the average number of shock treatments in the neuroses run from six to twelve, while in the psychoses (depressed phase manic-depressive psychoses and schizophrenia) a greater number are required.

The length of psychotherapy, of course, depends upon the patient's progress. Patients are usually seen once a week for 30 to 45 minute sessions; some few cases are seen twice a week. The average length of treatment approximates one year of weekly visits.

The following cases are examples of the more common types of disturbances that have undergone therapy, some with successful outcome and others with fair results. It has seemed sufficiently satisfactory to us that certain difficult ambulatory cases have been made more accessible to psychotherapy by shock treatment.

Case 1. Agitated psychasthenia. White male, aged 30, with suicidal thoughts, depression, irritability, rumination over the futility of life and the use of trying to make an adjustment, and phobia about having children. His symptoms date back about 10 years following a failure in a love affair after which he had himself sterilized. However, he was able to complete his work for a master's degree and is teaching in a junior college. His father killed his mother, who was a mental case, and then committed suicide when the patient was 10 years old. He and his sisters were brought up in an orphanage and he worked his way through college.

Patient received only four shocks at first because it was time for his school work to begin, but even this small number caused improvement to the point where he was easily accessible to psychotherapy. There was some regression after several weeks and four more shocks were given at weekly intervals while he was still active in teaching. At present he is progressing well with psychotherapy which was impossible before because of his agitated condition.

Case 2. Manic-depressive psychosis, depressive stage. Jewish male, aged 57, complained of severe depression, nervousness, fears of impending insecurity, excessive worrying over relatives and the condition of his race. His symptoms were of 4 months' duration with a rather rapid onset. He had had an attack of 3 months' duration 2 years previously which resolved spontaneously. In between the depressions he frequently was observed in rather hypomanic reactions and was constantly active, working 14 to 16 hours daily. He received six shocks at biweekly intervals and recovered from his depressed state sufficiently to be easily amenable to psychotherapy. There have been no signs of relapse or regression after 8 months.

Case 3. Schizophrenic, paranoid. Female, Jewish, aged 30. Patient complained of hearing voices urging her to be destroyed. She suffered agoraphobia, sexual frigidity, and occasional visual hallucinations. These symptoms were of short duration, 1 month, but already the patient was rather inaccessible to psychotherapy. Patient was given a series of ten shocks at biweekly intervals. After the seventh, she reported a cessation of hallucinations but, since she was still apparently withdrawn and walled-off, it was considered advisable to give at least three more shocks. An exploratory sodium pentothal interview after the seventh shock showed no indications of repressed hallucinations. Psychotherapy has been instituted and there seems to be good accessibility to this patient as a result of shock therapy.

Case 4. Schizophrenic, paranoid. Male, white, aged 50. In contrast to the previous case, this patient had delusions and hallucinations of a persecutory nature of about 5 years' duration and received no apparent help from twelve shocks. This patient has been under psychotherapy for almost a year with little apparent improvement.

Case 5. Involutional melancholia. Male, Negro-Indian, aged 60. Patient complained of nervousness, depression, difficulty in concentration, and impotency. Duration was 18 months with slow, gradual onset connected with the feeling of being unable to keep up sexually with his younger woman companion. After six shocks, the patient became accessible to the point where psychotherapy was deemed advisable. In this

particular case there was the complicating factor of arthritis which was aggravated by the seizures. However, patient showed a sudden recovery from melancholia and, after a few psychotherapeutic sessions, felt able to resume his usual life pattern.

SUMMARY

1. The exact status and ultimate benefit of shock therapies are still in doubt but, of the accepted forms, electroshock seems to be the favored technic.

2. Certain selected cases show favorable results on an ambulatory, outpatient basis. Technics of selection of patients, procedure, and follow-up as used by the Eighth Street Clinic are discussed.

3. Types of patients found to respond most favorably are those suffering from depression, melancholia, selected cases of mild schizophrenia, and some with agitated and hyperactive psychasthenia. A few case histories are cited as examples.

4. Relatively few adjunctive procedures have been found necessary except routine premedication with sodium pentothal.

5. The fact that shock therapy itself is only an adjunct to be used in making difficult cases accessible to routine psychotherapeutic procedures is emphasized.

Eighth Street Clinic
800 South Berendo St.

REFERENCES

1. Zeifert, M.: Convulsive shock therapy in an Army general hospital. Dis. Nerv. System 7:112-115, April 1946.
2. Baumoel, S.: Prevention of postconvulsive hyperexcitability in electro-shock therapy. Dis. Nerv. System 7:151-152, May 1946.
3. Lewis, N.: What's what about shock therapy. Mental Hyg. 30:177-185, April 1946.
4. Myerson, A.: Experience with electric-shock therapy in mental disease. New England J. Med. 224:1081-1085, June 26, 1941.
5. Wender, L.; Balser, B. H., and Beres, D.: Extra-mural shock therapy. Am. J. Psychiat. 99:712-718, March 1943.
6. Fetterman, J. L.: Ambulatory electro-coma therapy of psychosis. Dis. Nerv. System 8:5-10, Jan. 1947.
7. Wilbur, C. B.; Michaels, J., and Becker, A. H.: Atropine premedication in electro shock therapy. Dis. Nerv. System 8:74-76, March 1947.

Acute Closed Brain Injuries*

R. J. CHAPMAN, D.O., F.A.C.N.
Burbank, Calif.

Craniocerebral injuries may be broadly classified into open and closed types. Open injuries imply penetration or displacement of the cranium generally associated with subjacent damage to the meninges and cerebral tissue, such as compound or depressed skull fractures and penetrating wounds of the brain. Open injuries practically always require neurosurgical treatment for purposes of debridement and correction of defects in the cranial contour.

Closed brain injuries do not involve any disturbance in the cranial contour or disruption of meningeal or bony contours between the brain and the outside world. Closed head injuries, unlike open injuries, are so common and so simply treated if properly understood that they cannot be considered as problems necessarily requiring specialized care from a neurologist or neurosurgeon. In fact, the incidence of closed brain injuries is so high and the emergent aspects of this type of trauma so frequent that neurosurgical consultation is seldom available when needed, except possibly, in large institutions maintaining a neurosurgical service. By reason of this, the general practitioner must accept his responsibility in the management of this type of craniocerebral trauma and must acquaint himself with the principal diagnostic and therapeutic criteria, and it is the responsibility of the neurosurgeon to disseminate this information among general surgeons and general practitioners.

PREVENTABLE DEATHS

A high percentage of fatalities resulting from closed brain injuries occur regardless of any medical or surgical therapy employed, but too high a percentage of deaths results from conditions which could have been prevented had the patient been given the benefit of certain objective diagnostic procedures. Practically all patients with closed brain injury who succumb to preventable conditions do so from increased intracranial pressure. Therefore the surgeon's chief responsibility is that of properly appraising and controlling the most important treatable condition which may needlessly cause the patient's death — increased intracranial pressure.

*Presented before the Neuropsychiatric Teaching Session at the Fifty-First Annual Convention of the American Osteopathic Association, Chicago, July 24, 1947.

THE APPRAISAL AND CONTROL OF INCREASED INTRACRANIAL PRESSURE

Before an appraisal of the status of the intracranial pressure is attempted the physician should first direct his attention to a few conditions unrelated to the brain injury which may cause the patient's death if not promptly diagnosed and treated.

1. *Traumatic Shock.*—Obviously systemic shock (shown principally by a pulse pressure of less than 20 plus the usual associated symptoms of pallor, coldness and peripheral vascular failure) should be treated before any other diagnostic or therapeutic maneuvers are instituted. Profound shock is seldom seen in brain injuries alone and if present, associated injuries such as fractures of long bones, ruptured viscus, or internal hemorrhage, should be suspected. The treatment of traumatic shock is well known and will not be outlined in this discussion.

2. *Blood or Vomitus in the Bronchi.*—Bleeding in the posterior pharynx or vomiting frequently results in the aspiration of this material into the bronchi if the patient is profoundly unconscious. Faulkner[1] has shown that when such circumstances exist it is not uncommon for the patient to succumb because of aspirated blood or vomitus whereas the brain injury may have been minimal and not sufficient to cause death. If such a circumstance is observed, the best protection against this accident is to place the patient in a position of postural drainage, face down, similar to the position instituted in patients following tonsillectomy with general anesthesia. If shock is not present and there is no danger of aspiration of blood or vomitus, a semi-Fowler position is the one of choice in all cases of brain injury.

When these emergent conditions have been investigated and treated, the next step is to gain an accurate appraisal of the status of the intracranial pressure. Again we wish to emphasize that although intracranial pressure is not the only cause of death in acute closed brain injuries, it is the cause of nearly all deaths which might have been prevented.

Clinical observations of changes in the pulse, blood pressure, and optic fundi may be valid, but they seldom appear sufficiently early to be of any value in the early diagnosis of increased brain pressure.

Slowing of the pulse and increase in blood pressure subsequent to increased intracranial pressure seldom appear until the patient is practically moribund and papilledema is usually not evident until the increased pressure has been present for 24 to 48 hours. The state of a patient's sensorium is likewise an inaccurate means of determining the status of the intracranial pressure. Some of the most severe brain injuries may not be accompanied by increased intracranial pressure although blood is usually present in the subarachnoid space. *The only accurate, dependable means of obtaining an early appraisal of the intracranial pressure is to measure it with a manometer after lumbar puncture.*

On the basis of the spinal fluid findings, Munro[2] has suggested a classification relative to the degree of brain injury. Any patient who has been rendered unconscious as a result of a blow to the head, regardless of the duration of the unconsciousness, may be said to have suffered, at least, concussion.

1. If the intracranial pressure on lumbar manometry is normal (80 to 180 mm. of water) and the fluid clear, the degree of initial injury may be classified as concussion.

2. If the intracranial pressure is increased and the fluid clear, the condition may be classified as congestion and edema.

3. If the intracranial pressure is increased and the fluid bloody, the injury may be classified as contusion, or laceration, or both. As mentioned previously, normal or low pressure with associated bloody fluid in a profoundly comatose patient may indicate a less favorable prognosis than bloody fluid under increased pressure. The increased intracranial pressure may be due to edema of cerebral tissue proper, an increased production of cerebrospinal fluid due to blood in the subarachnoid space, or to intracranial space-occupying lesions such as hematoma. It is not always the height of the intracranial pressure which overwhelms the patient, but the rapidity of its rise.

METHODS OF CONTROLLING INCREASED INTRACRANIAL PRESSURE

Authorities still differ on the best methods of controlling increased intracranial pressure, the most important treatable death-producing condition in closed injuries. For years medical dehydration has been popular and has consisted principally of hypertonic solutions, mostly in the form of repeated injections of 50 per cent glucose solution. Glucose is a monosaccharide and readily passes the blood-brain barrier. It is of practically no value in the control of increased intracranial pressure since it soon enters the cerebral tissue and produces, rather than relieves, increased intracranial pressure. Gregersen and Wright[3] have shown that sucrose is much more effective as a medical dehydrating agent, but observations with the use of sucrose indicate that it may place an unnecessary burden upon the kidneys. Kennedy[4] suggests concentrated human serum as a satisfactory intravenous solution. This is administered in amounts up to 40 cc. repeated as needed, using spinal fluid pressure as a guide. (The concentrate is prepared by mixing 40 cc. of distilled water with the dry solids from 200 cc. of human serum. No grouping is necessary.)

There is the same objection to all methods of medical dehydration, that is that there is no accurate means of determining the effects of the agent upon the intracranial pressure except by lumbar manometry. If lumbar manometry is to be employed for purposes of appraising the pressure, there is no argument that the safest and most efficient means of controlling the pressure is by lumbar drainage at the time of manometry.

When the intracranial pressure is increased subsequent to trauma, there is no evidence whatsoever that a reduction of the increased intracranial pressure by lumbar drainage has any effect other than a wholesome one. As information accumulates, medical dehydration is rapidly being abandoned. At present practically all authorities agree that lumbar drainage offers the patient the most efficient protection available. As mentioned previously, lumbar puncture also permits an accurate objective appraisal of the intracranial pressure which cannot be obtained by any other means.

The following criteria may be set down concerning the indications for manometry, lumbar drainage, or both.

1. If the patient has been rendered unconscious from a blow to the head and has recovered consciousness or is showing a progressively clearing sensorium, lumbar puncture may be deferred provided the improvement is progressive.

2. If the patient is unconscious at the time of examination or if improvement has been only slight, appraisal of the intracranial pressure is desirable. If the intracranial pressure is normal, further lumbar taps may be deferred providing the subsequent course is one of progressive improvement.

3. If the intracranial pressure is increased but not over 300 it should be reduced slowly to a normal level and drainage repeated in 4 to 12 hours, depending upon the patient's condition. If the sensorium shows signs of becoming increasingly clouded or coma appears to be deepening, tap should be repeated in 2 hours.

4. If the initial pressure is over 300 it should be reduced by one-half the increase and the tap repeated in 1 to 3 hours until the intracranial pressure becomes stabilized at a normal level.

5. If the increased intracranial pressure is due to blood in the subarachnoid space, cerebral edema, or other factors unassociated with intracranial space occupying lesion, the pressure should be amenable to control by repeated lumbar drainage within a 24 to 48 hour period.. If the increased intracranial pressure is persistent or increases after this period of time, a complication in the form of hematoma must be seriously considered.

OTHER THERAPEUTIC AIDS

Although the physician's chief responsibility is that of controlling increased pressure, there are other aids to treatment which will contribute to the patient's comfort and speed his recovery. Authorities may differ concerning many aspects of management but all are agreed on the efficiency of one measure—namely, rest. As previously stated, if the patient is vomiting or bleeding from the posterior pharynx he must be placed prone or on his side, with the head slightly lower than the chest, to avoid aspiration of vomitus or blood. If this precaution is not taken, the patient may recover from the brain injury, only to die later from aspiration pneumonia or blood in the bronchi. With the foregoing exception, the patient should be supine in slight Fowler position or with the head elevated about 30 degrees. Ice bags to the head are in order unless they make the patient uncomfortable. Heat should be used only to make the patient comfortable. If the skin is dry and the patient febrile,

or showing other signs of toxic dehydration, heat should be avoided and fluids forced moderately. The bed rest should be absolute and should continue at least 1 week after all symptoms have disappeared.

Every nursing attention should be instituted to facilitate complete rest. Records should be kept—preferably in the form of a graph—of the pulse, respiration, temperature, blood pressure, depth of unconsciousness, and fluid intake and output. These observations should be made half-hourly if possible during the first 24 hours. Fluids and feeding should be given by mouth or by nasal tube. Glucose water is all the nourishment needed for the first 36 hours, but after that protein-containing foods or liquids must be started and adequate caloric needs supplied. A minimum of 1500 cc. of fluid should be given daily and the amount increased if the intracranial pressure does not go higher. The bowels may be kept open by enemata, and strict attention should be given the bladder. Restlessness in a semiconscious patient is frequently due only to a full bladder or some other nursing need which he is not able to communicate.

Fever and signs of meningeal irritation should be reported at once, but these signs do not necessarily mean bacterial meningitis. Subarachnoid bleeding usually causes some meningeal irritation and fever. The differentiation rests on spinal fluid studies. As the patient begins to regain consciousness he frequently becomes restless. At this time, as Rowbotham[5] emphasizes, encouraging words from the nurse or doctor will be of great help, although at the time it may appear useless. Sedation is frequently necessary to control this restless stage. Paraldehyde is probably our most valuable drug for controlling delirium or restlessness. Two drams orally or ½ ounce in starch paste rectally and repeated in 6 to 8 hours, if necessary, is usually adequate. Soluble luminal (3 gr. parenterally) followed by 10 gr. each of chloral hydrate and sodium bromide orally may also be used. The minimum amount of sedation should be used to obtain the desired effect. Opiates have no place as a sedative in intracranial problems. They increase intracranial pressure and depress respiration.

If respiration and circulation are not adequate, caffeine (7½ gr. every 3 to 4 hours) is a most valuable drug. It reduces intracranial pressure and stimulates the circulation. In intracranial problems it is far superior to any other cardiorespiratory stimulant.

COMPLICATIONS OF CLOSED BRAIN INJURIES

If the increased intracranial pressure does not respond to lumbar drainage or, probably more important, if the patient shows fluctuations in the sensorium such as a so-called lucid interval in which the patient emerges from the initial unconsciousness only to lapse into coma later, or if he shows alternate clearing and clouding of the sensorium, a complication in the form of an intracranial extracerebral hematoma must be suspected. It is important to recognize hematomas as early as possible since the patient cannot recover from them spontaneously. Subdural hematomas may become chronic and not cause death immediately but if a hematoma is not diagnosed and operated upon, the patient eventually succumbs to this complication.

HEMATOMAS

1. *Extradural Hematomas.*—Extradural hematoma is probably the most emergent condition which may result in any type of craniocerebral trauma. This type of hematoma is caused by tearing a meningeal vessel or a dural sinus. It is frequently associated with a fracture across one of the meningeal grooves in the squamous portion of the temporal bone. Blood is poured into the extradural space and dissects the dura away from the inner table of the cranium thereby opening up additional points of bleeding with a resultant, rapidly forming mass of blood for which there is no possible escape. The condition is seen more often in young persons than in older persons since the dura is less firmly attached to the skull in the former. Death is due to rapidly mounting intracranial pressure and subsequent medullary failure. Extradural hematomas emphasize the important fact that it is not so much the height of the intracranial pressure which overwhelms the patient in cases of cerebral trauma but the rapidity of its rise.

The symptoms are those of an initial brain injury, generally of minimal nature and producing only a fleeting loss of consciousness, followed by a subsequent progressively deepening coma and death, usually within a few hours. The emergent aspects of extradural hematomas may be compared to a stab wound to the heart. It is seldom that an interval of over 8 hours elapses between initiation of this event and death. Fortunately this condition can be successfully treated surgically if the condition is suspected sufficiently early and the emergent aspects of the problem appreciated. Unfortunately the majority of patients die because the emergent aspects of the condition are unappreciated by the average physician. The fact that extradural hematomas are comparatively uncommon does not justify the general lack of information concerning this complication. Any patient developing progressively deepening coma subsequent to an initial head iniury not sufficient to explain the subsequent downhill course should be suspected of having extradural hematoma and should be operated upon at once. An x-ray showing a fracture line across a meningeal vessel groove or dural sinus practically makes the diagnosis certain.

2. *Acute Subdural Hematomas.*—Acute subdural hematomas result from the tearing of a small vessel bridging the subdural space with the resultant incarceration of blood in this space. If the arachnoid membrane is disrupted at all it is usually subsequently sealed with the result that cerebrospinal fluid is imbibed through the dialytic arachnoid membrane into the subdural space by reason of the increased osmotic pressure exerted by the incarcerated blood. Since the dura has no absorptive powers, the mass increases in volume even though the initial bleeding may have ceased.

The symptoms are similar to those of extradural hematoma in that the lucid interval or "in and out" fluctuations in the sensorium are usually seen, but, in general, acute subdural hematomas are less swiftly moving and consequently less emergent, generally requiring from 12 hours to several days to develop. If the subdural hematoma requires 2 to 3 weeks or longer to produce symptoms it is then classified as a chronic subdural hematoma and the mechanism of death is due to a progressive compression of the cerebral substance rather than increased intracranial pressure as is the mechanism in acute subdural hematomas or extradural hematomas.

It is not always possible to diagnose a hematoma definitely prior to operation, but if the increased intracranial pressure does not respond to lumbar drain-

age, or if the patient is not improving in proportion to what would be expected on the basis of the initial appraisal of the extent of the brain injury, or if fluctuations in the sensorium are observed, hematoma may be justifiably suspected. If hematoma is suspected the patient should be given the benefit of exploratory trephination without delay. This trephination should be done bilaterally since hematomas, particularly subdural hematomas, are not uncommonly bilateral. Local neurological signs such as a dilated pupil or hemiplegia are not always dependable signs of localization in cases of hematoma. This is particularly true in subdural hematomas. The inconsistent local motor signs may be explained on the basis of the liquid resilient mass not exerting sufficient pressure upon the subjacent motor cortex to produce a contralateral hemiparesis yet bringing about a shift of the entire brain to the opposite side with a subsequent compression of the opposite brain stem against the tentorium resulting in a paralysis on the side of the lesion.

In cases where hematoma is suspected or in which its possibilities cannot be eliminated the patient should never be denied the benefit of exploratory trephination simply because his condition is poor or becoming worse. It must be remembered that if hematoma is present the patient will improve only if he is operated upon and the mass evacuated. Consequently, postponing surgical treatment with the idea of "building up" or preparing the patient for surgery will only lessen his chances for recovery. Exploratory trephination is a relatively simple and nontraumatic neurosurgical procedure which will not alter the prognosis if a fatal outcome is inevitable and will most likely save the patient's life if recovery is possible.

SUMMARY

1. The high incidence of closed brain injuries will permit specialized service in only a small percentage of cases and therefore places the responsibility of proper understanding and management of these problems upon the general surgeon and general practitioner.

2. Many patients with closed brain injuries die preventable deaths and in most cases these deaths are due to increased intracranial pressure.

3. Increased intracranial pressure may be due to cerebral edema, blood in the subarachnoid space, or intracranial space occupying lesions in the form of complicating hematomas. It is not always the height of the intracranial pressure that overwhelms the patient but the rapidity of its rise.

4. After such conditions as traumatic shock and the aspiration of blood or vomitus into the bronchi have been investigated and treated, the physician's chief responsibility is to protect the patient against the only treatable aspect of his closed brain injury, increased intracranial pressure.

5. Clinical methods of appraising increased intracranial pressure are inadequate. The only accurate objective means of determining the status of the intracranial pressure is through lumbar manometry.

6. A classification concerning the degree of brain injury has been suggested on the basis of spinal fluid findings. It must be emphasized that all patients succumbing to closed brain injuries do not die by reason of increased intracranial pressure, but the increased pressure is the only condition subject to control.

7. Although medical dehydration has been a popular means of reducing intracranial pressure in the past, it is far less efficient and more dangerous than direct lumbar drainage. If appropriate lumbar drainage does not bring the increased intracranial pressure under control within a 48 hour period, a complication such as hematoma must be suspected.

8. Even more important criteria justifying a suspicion of hematoma are fluctuations in the sensorium shown by an alternate clearing and clouding or particularly by a so-called lucid interval. Any patient must be suspected of hematoma who shows these fluctuations in consciousness or who is not responding as would be expected on the basis of the initial appraisal concerning the extent of the brain injury.

9. Hematomas may be either extradural or acute subdural. Extradural hematomas are always swiftly moving and the most emergent of any conditions associated with craniocerebral trauma. Subdural hematomas are slower in developing but equally serious since no patient recovers spontaneously from any type of intracranial extracerebral hematoma of closed nature.

10. If hematoma is suspected the patient should be given the benefit of bilateral exploratory trephination without delay.

418 E. Olive Ave.

REFERENCES

1. Faulkner, W. B., Jr.: Blood within the bronchi following head injuries. Am. J. Surg. 56:647-649, June 1942.

2. Munro, D.: War surgery and traumatic lesions; early diagnosis of craniocerebral injuries. Am. J. Surg. 56:3-14, April 1942.

3. Kennedy, F.: Brain injury in war. Am. J. Surg. 56:343-345, May 1942.

4. Gregersen, M. I., and Wright, L.: The effect of intravenous injections of sucrose and glucose upon the reducing power of cerebrospinal fluid, before and after hydrolysis. Am. J. Physiol. 112:97-108, May 1935.

5. Rowbotham, G. F.: Acute injuries of the head. Williams & Wilkins Co., Baltimore, 1942, Chapter 4.

PSYCHOTHERAPY

The Aim of Psychotherapy.—Since neurotic symptoms are fundamentally regressive, irrational, protective substitutions for the real problems which produce them, the aim of psychotherapy is to help the patient back to reality. He must achieve a more mature method of dealing with reality rather than escaping into neurosis. Attempts to substitute the physician's methods, or those of a relative or creed or cult—a sort of mental antitoxin—leave him little lasting benefit. Ideally, the patient should be helped to find his own way, a way commensurate with his abilities and his standards, by relieving him of disabling emotional handicaps. He must relearn to use his inherent adaptive mechanisms in coping with reality if he is to gain an active rather than a passive immunity to his neurosis.

More than any other form of therapy, psychotherapy must be individualized. To be rational it must be based on an adequate understanding of the psychopathologic condition being treated.—Dale Groom, M.D., *Journal of the American Medical Association,* October 18, 1947.

Neuropsychiatry
Vol. 1, No. 1, December, 1947

The Training of Osteopathic Psychiatrists Today

THOMAS J. MEYERS, M.A., D.O., F.A.C.N.
Pasadena, Calif.

With the incidence of the recent war, medicine was caught unprepared for the demands that have been made upon it by a seeming universitality of psychiatric problems that are newly recognized. As a result, the last 8 years have witnessed a phenomenal effort to provide facilities for the care of the emotionally ill and for the training of personnel to minister to their needs, and at the same time to educate the public as to the need of such care. The Army gave highly concentrated short courses in psychiatry and assigned those physicians who came through them to responsibilities of a psychiatric nature. The record of the armed services is very good, but it is questionable whether civilian practice could do as well, lacking the discipline of the services. Instead of 3 months, as provided in these short service courses, the civilian physician must spend a minimum of 5 years in training, and even then there is a question as to whether enough time has been allotted.

For many years much comment has been made concerning the length of time that medical education requires. It is becoming more and more difficult to go through medical school and as the number of applicants for admission increases, the requirements for acceptance are raised higher and higher so that today there are few schools which will admit matriculants with less than 3 years of premedical work. Then there follows 4 years of professional schooling and at least a year of intern training. And now, with the growing demand for specialists, as many as 5 years may be added. In spite of this long period devoted to the making of a specialist, there is still much difficulty finding room for all the subject matter that the doctor should know. In the field of psychiatry, especially, there is some question as to whether this time period is adequate. Regardless of the answer to this question, it is not practical to extend the training of the doctor over too many of his younger years. In lieu of being able to turn out a finished product, schools must indoctrinate the trainee with study and research habits that will allow him to grow into an informed specialist. Kubie,* in an address before a reunion of his class at Johns Hopkins Medical School, stated that it took 15 to 20 years to make a psychiatrist, and I am inclined to agree with him.

One should not be able to claim the distinction of being a psychiatrist until he has an understanding of the disordered mind. This requires more than a diagnostic ability and a greater degree of skill than a technical knowledge of shock treatment, malariotherapy, the use of drugs, or osteopathic manipulation in nervous cases. Such procedures should be part of the general practitioner's armamentarium. The psychiatrist must know the mind, both normal and abnormal. He must be able to manipulate and handle mental reactions, and have some degree of prognostic efficiency in mental abnormalities. He must know the neurosis and its significance. This goes to the core of human motivation and feeling, especially when the unfolding of the neurosis is experienced subjectively and objectively by the trainee. Such technics as hypnosis, mental catharsis, free association, nondirective and analytic psychotherapy are contingent upon such knowledge and derive their effectiveness from it.

On this groundwork the training program adopted for osteopathic candidates in psychiatry is set up. Graduates of osteopathic colleges, who have had 1 year's general internship, if graduating after 1946, are acceptable for this program. They must also have a personality conducent to the practice of psychiatry.

The first year is an indoctrination period, during which time the trainee is exposed to basic science study. This involves the subjects of neuroanatomy, neurophysiology, neuropathology, neuroroentgenology, psychobiology, psychopathology, bacteriology, and biochemistry as it pertains to the specialty, as well as the clinical subjects of neurology and psychiatry. When possible some psychology, sociology, and anthropology are recommended. Drill in taking psychiatric case histories begins in this year, as well as diagnostic training in the psychoneuroses.

The second year is a continuation of the first and, ideally, is spent in attendance upon outpatient or ambulant psychiatric cases. This covers most of the neuroses, milder psychoses, mental deficiencies, sexual problems, marital difficulties, epilepsies, and somatic and luetic conditions. It is concerned, too, with child guidance and the methods of handling behavior problems. The work with such conditions includes diagnostic study in association with the psychologist and psychiatric social worker and drill in the psychotherapeutic technics. Electroshock, fever treatment, narcoanalysis, neurosyphilitic care, and the therapeutic socialization of cases is covered. In this period the trainee comes to know the social significance of the mental and emotional patient and to appreciate the impact of these illnesses upon both the patient and society. The trainee is expected to keep contact with current literature, to write some, and to engage in original research.

The third year is devoted to the psychoses. This means full-time residence in an institution for the care of the mentally ill and gives the trainee a familiarity with the major mental derangements. Experience in the handling of mental patients, as well as contact with ward organization and operation, is obtained. It is intended that the student will develop a recognition familiarity with the full range of the psychoses and see at first hand the working of the therapeutic procedures utilized. Besides this he will have an opportunity to delve into the medical mechanisms that are behind the psychotic phenomenon. He will also learn the legal side of this part of medical practice.

The fourth and fifth years are spent in active practice in psychiatry. This may be under the preceptorship or in association with a certified psychiatrist, or may be a continuation of the fellowship or residency of the earlier training period. These years constitute the maturing stage in which the young psychiatrist brings to practical fruition the knowledge acquired in residency. It is here that he shoulders the full responsibility of the care of psychiatric patients.

*Kubie, L.: Impact of modern psychiatry on medical education, medical practice, and hospital organization. Bull. Johns Hopkins Hosp. 80:348-360, June 1947.

Candidates for certification in psychiatry will be accepted by the American Osteopathic Board of Neurology and Psychiatry for examination after a 5 year preparation such as that outlined. At the present time all osteopathic physicians meeting these minimum requirements have been certified. Anyone practicing psychiatry or claiming to be a psychiatrist in our profession and not in possession of a certificate from this Board has either failed to qualify in some measure or is still in training. Qualifications have been established after long study and with full consideration of the training facilities available to our profession and are within the range of those who wish to prepare themselves. The Board serves to help, in an advisory capacity, those physicians wishing to go into psychiatry or neurology. Consultation with the Board in regard to a projected study program should be sought before beginning.

The problem of providing the opportunities for specialized study in the osteopathic profession is one that faces all the specialties. The American College of Neuropsychiatrists has succeeded in pooling the psychiatric resources of our profession in order to make available an adequate standardized training program on a specialized level. At present, the graduate schools of the Los Angeles, Kansas City, and Kirksville colleges, the Eighth Street Clinic in Los Angeles, the Still-Hildreth Osteopathic Sanatoria in Macon, Mo., and Tulsa, Okla., and the Merrill Neuropsychiatric Sanitarium in Venice, Calif., are cooperating in this program. Basic science work is given in the colleges, ambulant psychotherapeutic training at the Eighth Street Clinic and inpatient residencies are offered at the Still-Hildreth and Merrill sanatoria. This program represents a self-sacrificing, cooperative effort that is without parallel in our profession. It involves the expenditure of time and money in incorporating services on a teaching level by the institutions and individuals included, in order that our profession may serve efficiently in the psychiatric field. This is our answer to the challenge presented by the need for more adequate psychiatric care in our communities.

234 East Colorado Street.

The Electrical Activity of the Brain

FROM THE EIGHTH STREET CLINIC
Los Angeles

Nervous activity is electrical activity. Functioning nerve cells create electricity. Electrical activity of the cells of the cortex was first demonstrated in 1875 by Caton, an Englishman, who placed electrodes on the exposed brain of a rabbit and recorded electrical fluctuations arising from the cells under the electrodes.

In 1924 Berger, a German, recorded electrical activity from a human brain by placing electrodes directly on a brain that was exposed during surgery. In 1929 he succeeded in recording electrical activity from a human brain by placing electrodes on the outside of the skull.[1]

Since that time a great deal of research has been done. Machines, called electroencephalographs, are tuned in to the electrical activity of the brain by means of small electrodes that are attached to the outside of the skull. These electrodes carry the electrical energy produced by the cortex into the electroencephalograph which magnifies it some 10,000,000 times and records it on moving tape. Normal cortical cells discharge nine to fifteen times per second and these electrical discharges are recorded on the tape as a series of waves recurring at the same rate.

Injury to the brain cells lying underneath the recording electrode changes the rate, and usually the height, of the recorded waves. As a rule the rate of discharge from injured cells is slower than from normal cells, and the greater the injury the slower the rate.[2,3,4]

Sometimes, however, injury irritates cortical cells in such a way as to increase the rate of discharge. Sometimes slow and fast activity alternate in the same record. This is probably due to metabolic deficiency associated with neuronal irritability.

An epileptic seizure may be recorded on the electroencephalogram as a series of fast sharp waves—spikes—recurring as often as forty times per second. During a seizure the amplitude—height—of the waves is usually greatly increased also. This type of electroencephalographic pattern was formerly believed to be diagnostic of grand mal epilepsy, but it may occur in a patient who has only petit mal clinical seizures. Another type of epileptic encephalographic record shows a slowing of the rate of discharge to about six a second and consists of alternating round-topped and sharp waves, or spikes. This has been thought diagnostic of petit mal, but may be found in patients who have grand mal clinical seizures. Between seizures the electroencephalographic pattern may be normal or it may be abnormally slow.

Most authorities use the terms grand mal and petit mal to classify clinical patterns only. The electroencephalographic patterns they classify according to the location that initiates the discharge as (1) focal, (2) bisynchronous (bifrontal, biparietal, bitemporal, or bioccipital), or (3) diffuse. The bisynchronous discharge, which is usually of the alternating wave and spike type, is believed to originate deep within the brain, near the midline, and to affect the cortex of both hemispheres simultaneously by pressure or through corticosubcortical pathways.[5,6]

At the United States Naval Training Station at Newport, R. I., the electroencephalograph was found of great benefit in the diagnosis of epilepsy. Solomon reports that in twenty-five cases of epilepsy the diagnosis would have been missed without the evidence of the electroencephalograph, while in thirteen cases a diagnosis of epilepsy would have been made mistakenly had not a normal electroencephalogram led to further investigation which ruled out the disorder.[7]

The electroencephalograph was used in the Navy Hospital in Philadelphia on all cases giving a history of repeated headaches, head injuries, fainting spells, convulsions, or other symptoms suggestive of organic brain disease.[8]

The electroencephalograph is of great help in locating focal brain lesions such as neoplasms, tumors, scar tissue resulting from old injuries, abscesses, hemorrhages, syphilitic gumma, etc. Such lesions usually result in sharply localized, slow, high-amplitude

waves. Widespread interference with nutrition of cortical cells may be caused by arteriosclerosis, by pressure from edema or large subdural or epidural hemorrhages, by generalized syphilis, etc. Such interference with nutrition may greatly reduce cortical electrical activity over a wide area, or even suppress it altogether, producing a flat record.[5,8,9] If interference with nutrition continues over a long period many superficial cortical cells may die, resulting in a permanently flat record.

Lesions of deep portions of the brain may escape detection by the electroencephalograph unless they involve the cortex by pressure or otherwise. Lesions of the basal ganglia may effect cortical cells by pressing or pulling on the corticosubcortical pathways which pass near the basal ganglia.[3]

Psychopathic individuals and behavior-problem children show definitely abnormal electroencephalograms in about 20 per cent of cases studied, borderline records in 32 per cent and normal records in 48 per cent. Normal persons show abnormal records in about 10 per cent of cases tested.[10-15]

Sedative drugs affect the electroencephalographic patterns and therefore should not be taken for 48 hours previous to the making of a record. Some sedatives first speed up and then slow the rhythm.[16,17,18]

TECHNIC OF TAKING ELECTROENCEPHALOGRAMS

The orthodox method of attaching electrodes to the skull is to cement them on with collodian. This is a slow difficult procedure. At the Eighth Street Clinic in Los Angeles we are working on a plastic headband electrode holder which still has to be perfected. In the meantime we use perforated elastic bands quite satisfactorily. We buy ordinary elastic such as women use for holding up stockings. We cut small holes in this as close together as possible and overcast around the holes to prevent ravelling. A strip of this elastic encircles the head and is pinned above one ear with a safety pin. This band should fit snugly but not tightly. Two other perforated bands cross the vertex of the head in front of, and posterior to, the central fissure. These two bands are pinned to the circular band above each ear. To prevent these two latter bands from slipping backward or forward at the vertex they are pinned to a tape which is attached to the circular band in front and at the back.

The small electrodes are slipped through the perforations in the elastic bands and held by them firmly against the skull, the hair being parted and drawn out of the way. The perforations in the bands are large enough to admit the electrodes but not large enough to allow them to slip out easily. By having many perforations close together the position of the electrodes can be adjusted close together on a small head, farther apart on a large head. A salt contact paste is used between the electrodes and the skin.

The indifferent electrodes which are attached to the lobes of the ears may be attached with earrings. Or they can be slipped through perforations in a piece of tape and the tape attached to the ear lobes with Scotch tape.

The patient lies relaxed, with eyes closed, in a quiet, dimly lighted room. All external stimuli are excluded in so far as possible. Any stimulus which attracts the attention of the patient may greatly change the electroencephalogram.[1] Movements and muscle tensions also alter the record and should be noted on the moving tape when they occur. Short naps must also be noted and recorded.

Before surgery is performed on the brain to remove tumors or scar tissue the electroencephalogram should be checked with a pneumoencephalogram. The electroencephalogram should always be checked with clinical symptoms before a positive diagnosis is given. Solomon and his co-authors[7] state that the electroencephalogram "is a laboratory procedure and should be considered as a supplement of, and by no means a substitute for clinical judgment. Just as the presence of albumin in the urine indicates some disturbance of physiological function in the genito-urinary tract, so an abnormal electroencephalogram indicates dysrhythmia in the electrical discharges of the brain. When associated with appropriate symptomatology such dysrhythmia may properly be regarded as indicative of some disability rendering the subject unfit for normal activities."

M. L. L.

REFERENCES

1. Gibbs, F. A., and Gibbs, E. L.: Atlas of encephalography. Published by the authors, Boston, 1941.

2 Gibbs, F. A.: Diagnostic and prognostic value of the electroencephalogram. J. Am. M. A. 118:216-219, Jan. 17, 1942.

3. Kennard, M. A.: Electroencephalogram of decorticate monkeys. J. Neurophysiol. 6:233-242, July 1943.

4. Jasper, H., and Penfield, W.: Electroencephalograms in posttraumatic epilepsy; pre-operative and post-operative studies. Am. J. Psychiat. 100:365-377, Nov. 1943.

5. Echlin, F. A.: Electroencephalogram associated with epilepsy. Arch. Neurol. & Psychiat. 52:270-289, Oct. 1944.

6. Hurah, J. B.: Origin of the spike and wave pattern of petit mal epilepsy; electroencephalographic study. Arch. Neurol. & Psychiat. 53: 274-282, April 1945.

7. Solomon, P., *et al.*: Electroencephalography in selection of naval recruits. U. S. Nav. M. Bull. 41:1310-1317, Sept. 1943.

8. Hines, C. G.; Tenney, L. H., and Hughes, J.: Electroencephalographic diagnosis of organic brain disease. U. S. Nav. M. Bull. 42: 101-107, Jan. 1944.

9. Ulett, G.: Electroencephalogram of dogs with experimental space-occupying intracranial lesions. Arch. Neurol. & Psychiat. 54:141-149, Aug. 1945.

10. Knott, J. R. and Gottlieb, J. S.: Electroencephalogram in psychopathic personality. Psychosom. Med. 5:139-142, April 1943; Electroencephalographic evaluation of psychopathic personality; correlation with age, sex, family history and antecedent illness or injury. Arch. Neurol. & Psychiat. 52:515-519, Dec. 1944.

11. Gottlieb, J. S.; Knott, J. R., and Ashby, M. C.: Electroencephalographic evaluation of primary behavior disorders in children. Arch. Neurol. & Psychiat. 53:138-143, Feb. 1945.

12. Silverman, D.: Electroencephalogram of criminals; analysis of 411 cases. Arch. Neurol. & Psychiat. 52:38-42, July 1944.

13. Jasper, H. H.; Solomon, P., and Bradley, C.: Electroencephalographic analysis of behavior problem children. Am. J. Psychiat. 95:641-658, Nov. 1938.

14. Michaels, J. J., and Secunda, L.: Relationship of neurotic traits to encephalogram in children with behavior disorders. Am. J. Psychiat. 101:407-409, Nov. 1944.

15. Solomon, C. I.; Brown, W. T., and Deutscher, M.: Electroencephalography in behaviour of problem children. Am. J. Psychiat. 101: 51-61, July 1944.

16. Engel, G. I., and Rosenbaum, M.: Delirium; electroencephalographic changes associated with acute alcoholic intoxication. Arch. Neurol. & Psychiat. 53:44-50. Jan. 1945.

17. Brazier, M. A. B., and Finesinger, J. E.: Action of barbiturates on cerebral cortex; electroencephalographic studies. Arch. Neurol. & Psychiat. 53:51-58, Jan. 1945.

18. Greenblatt, M.; Levin, S., and Schegloff, B.: Electroencephalographic findings in cases of bromide intoxication. Arch. Neurol. & Psychiat. 53:431-436, June 1945.

Journal A.O.A.
Vol. 47, No. 4

A Simple Screening Device for Aid in Detection of Brain Damage

ANTHONY DI NOLFO, D.O.
Tulsa, Okla.

In order to increase the efficiency of the psychiatric survey at the Eighth Street Clinic, Los Angeles, it was found desirable to add to the diagnostic routine a group of tests which would aid in discriminating between psychiatric and neurologic syndromes. These tests were not to be used as final criteria for ascertaining brain damage, but merely to provide landmarks for further testing.

A review was made of various psychometric procedures in current use. These suggested numerous tests which were suitable for inclusion as part of the routine psychiatric examination of the clinic when the history and symptomatology of a patient aroused suspicion of organic damage.

FUNCTIONS AFFECTED BY BRAIN DAMAGE

Adequate evaluation of the results of testing requires an understanding of the specific losses in mental efficiency. Many investigators have enumerated various functions that are apparently affected when continuity of the cerebral cortex is disrupted. A list is given below which serves to clarify the deficiencies which the psychometric tests attempt to expose:

1. There is only slight loss in previous intellectual attainment
2. Recent memory is impaired
3. There is a tendency toward perseveration
4. A loss occurs in the ability to maintain prolonged attention and concentration
5. Integrated visuomotor activity is impaired
6. Spatial judgment is impaired
7. Capacity to learn from experience is diminished
8. Finally, there is impaired ability to think abstractly. This quality seems to be the most important phase affected.

Goldstein[1] indicates that the inability to assume the "abstract attitude" is the major dysfunction of organic damage. He subclassifies abstraction as follows:

1. Ability to assume a mental act
2. To account for acts to oneself; to verbalize the account
3. To shift reflectively from one aspect of a situation to another
4. To hold in mind simultaneously various aspects of a situation
5. To grasp the essentials of a given whole; to break up a given whole into parts; to isolate and synthesize them
6. To abstract common properties reflectively; to assume an attitude towards the "mere possible;" and to think or perform symbolically.

REQUIREMENTS FOR A SCREENING DEVICE

The tests used, therefore, were to sample these functions and still fall within a limited scope. The measures were to be adaptable to the survey procedure. They were not to require specialized technics for administration and scoring. A minimum of material was to be necessary. And, finally, they were to add only a small amount of extra time to the history-taking procedure.

TESTING PROCEDURES

Although many valuable tests were available, only a few were adaptable to the standards delineated in the preceding paragraph. Others were discarded for various reasons. The Goldstein-Scheerer cube test, the Gelb-Goldstein color sorting test, the Gelb-Goldstein-Weigl-Scheerer object sorting test and the Goldstein-Scheerer stick test[1] were excellent but involved too much time for administration and scoring and required the use of complex materials. Although the Wechsler-Bellevue test provided a rough estimate of impairment,[2, 3, 4] it also required specialized knowledge for administration and interpretation and was not included. Armitage[2] found the Shipley-Hartford Retreat Scale and the Hunt-Minnesota test to be of questionable value in detecting presence of brain damage; therefore, these tests were excluded. However, eight measures were chosen to comprise a test group suitable for use in the Clinic.

TESTING PROCEDURES

Various workers noted estimation of previous levels of intelligence was necessary to compare former capacity with recent performance. Information gained in the history taking may be used to estimate former maximal abilities.[2, 5] Ruesch[5] suggests the following line of questioning:

1. The highest educational level achieved; at what age?
2. School grades repeated; which ones; at what age?
3. Highest earning power in dollars per week; at what age?
4. Highest occupational status: at what age?
5. Highest social status (public office, club official, church official, etc.); at what age?
6. Leisure time, hobbies, sports: when?

Ruesch also gives a simple mode of roughly estimating the I.Q. The highest school grade passed and the age at which the patient left school are noted. (The patient is assumed to have left school for lack of intelligence only.) A five-point credit or penalty is given for each year a subject is retarded or advanced at school in relation to age. This is added or subtracted from 100. Subjects with less than four years' education receive an I.Q. of 85. The minimal mental age may also be estimated from the chart labeled Figure 1.

THE DIGIT SPAN

The digit span (along with the digit symbol) seems to be the most indicative subtest of functional loss in the Wechsler-Bellevue scale.[3, 6] It measures maintenance of attention and ability for immediate recall.[6]

The procedure of Wells and Ruesch[7] is relatively simple. Repetition forward: The subject is given three digits at a rate of one a second. If he repeats them correctly, the series is increased progressively by one digit. In case of failure, a second trial is given with an alternate series of numbers.

Repetition backward: The subject is started with three digits and a process similar to above is followed.

School Grade	Age	Adult I.Q. (Pornald)	Adult I.Q. (Wechsler)	Chronological Age
Kindergarten	5	30	-	5
1	6	40	-	6
2	7	45	42	7
2 - 3	8	50	49	8
3	9	60	58	9
3 - 4	10	65	68	10
4	11	70	78	11
5 - 6	12	80	86	12
7	13	86	92	13
8	14	90	97	14
9	15	96	99	15
10	16	100	100	16
11	-			17
12	-			18

Fig. 1

The patient repeats the numbers in reverse order. He should be given plenty of time to respond. With backward repetition normal performance is usually one or two less than forward.

The following may be used for convenience:

85 394 7295 58274 362915 3514739 85162937
62 875 4962 39481 725816 7281594 16952738
94 837 6384 72583 817492 7359628 95184726

Scoring is according to Wells and Ruesch.[7] Digits forward: 7, good average; 6, low average; 5, marginal. Digits backward: 5, average; 4, marginal.

100-7 TEST

This is a simple test, described by Hayman[8] and Ruesch,[5] which is dependent upon previously learned abstractions and mathematical ability. It determines ability to shift reflectively from one aspect of a situation to another. However, no differentiation is made between organic and functional disturbance. The patient's previous mathematical ability should be determined.

The procedure is not difficult. The patient performs serial subtractions as follows: $100 - 7 = 93$; $93 - 7 = 86$; $86 - 7 = 79$; $79 - 7 = 72$, etc. The correct answers are 93, 86, 79, 72, 65, 58, 51, 44, 37, 30, 23, 16, 9, 2. The time of performance is noted, the average being 2 minutes or less. In scoring, one credit is given for each subtraction operation. More than six errors equals failure.

TRAIL MAKING TEST

Armitage[2] describes a test which measures the ability to perceive a double relationship, ability to plan ahead ideationally, ability to shift, and presence of perseverative trends. The test has two parts. Part A consists of 25 circles drawn on a sheet of paper and spatially arranged in random order. Each circle is numbered from 1 to 25. Seven circles numbered 1 to 7 are drawn on the reverse side of the paper and are used for demonstration.

The subject is requested to draw a line from circle 1 to 2, from 2 to 3, etc. The numbered circles may be pointed out but an imaginary line should not be drawn with either finger or pencil. The test is to be performed in the shortest possible time. In case of error the wrong line is erased or scratched out and the patient continues as quickly as possible. After demonstration with the sample, the page is turned over and the test repeated.

Part B is similar in structure to Part A. Twenty-five circles are spatially arranged in random order on a sheet of paper. However, the circles are both numbered and lettered, a numbered circle being followed by a lettered circle. A sample is drawn on the reverse side of the paper. Seven circles are marked consecutively with a number or a letter such as the following: 1, A, 2, B, 3, C, etc. The patient is asked to draw a line from circle 1 to circle A, from circle A to circle 2, from circle 2 to circle B, etc. The sequence of number-letter, letter-number is indicated carefully. Again, a circle may be pointed out but a line should not be traced with the finger or pencil. When the example is completed accurately, the page is turned over and the instructions repeated with the actual test.

In scoring, a failure is indicated if the patient proceeds beyond 3 circles without correction of an error and a zero is given. If the test is completed correctly in less than 20 seconds a maximum score of 10 is given. Partial credit may be given depending upon rapidity of completion.

HOLE IN THE BOARD TEST

Ruesch[5] gives a sample test to determine ability to plan ahead ideationally. The materials required are a thick cardboard with a hole ⅛ inch in diameter, a sheet of paper to cover the cardboard, and a pencil. The paper is placed over the cardboard and the patient advised of the size of the hole. Then he is asked to locate the hole with the pencil through the paper. In scoring, 2 credits are given for any efficient plan of search such as parallel lines ⅛ inch apart or concentric lines ⅛ inch apart. One credit is given for any other plan. Any action without a plan, that is, an unsystematic search, is counted as a failure.

MEMORY FOR DESIGNS

Benton[9] describes a visual retention test which examines the following functions: The ability to hold in mind simultaneously various aspects of a situation and to think or perform symbolically. It utilizes sensorimotor components of vision and drawing. Also, it is relatively insensitive to emotional and tensional influences, and in organic impairment is expected to produce subnormal efficiency.

The test materials consist of seven cards 5 by 8 inches with a specified design on each card. The size of the designs is 2 inches for maximal height and width of the large figures and ½ inch for the maximal height and width of the smaller peripheral figures. They are graded in difficulty, the easier ones first. There are two sets of cards, form A and alternate form B which may be used for retesting.

The patient is given a pencil and seven blank sheets of paper the size of the test cards. The design is shown for 10 seconds and, after its removal, he attempts to draw it from memory. The cards should be presented without comment although the performance may be praised.

The scoring is lenient. Success is indicated when a design is essentially correct, even though it may have minor distortions. However, the reproduction either passes or fails. The score may range from 0 to 7, one credit being given for each correct drawing. Seven equals high average; 6, average; 5, low average; 4, subnormal or borderline; and below 4, defective.

The diagrams to be used on the cards are shown in Figure 2.

PICTURE SIMILARITIES TEST[7]

The functions measured are conceptual and categorical thinking; that is, abstraction of common

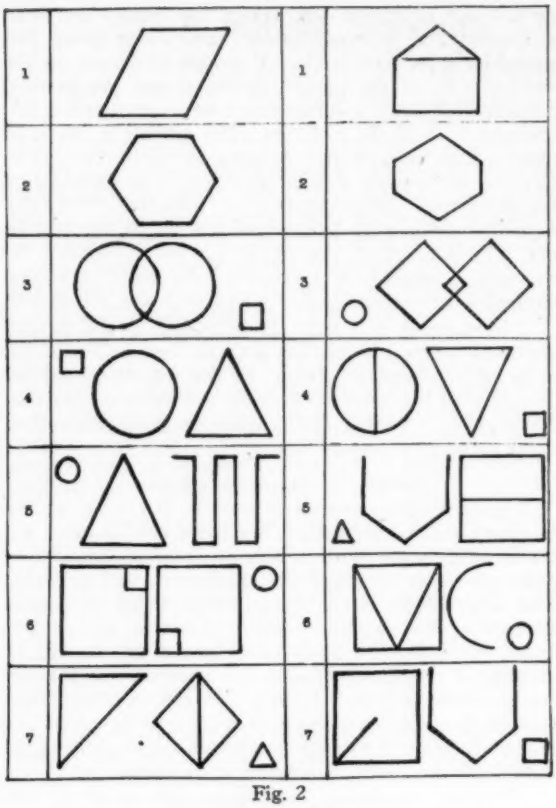


Fig. 2

properties reflectively, formation of hierarchic concepts, and ability to shift.

There are five sets of pictures with ten items each.* The items are alike in some way. They may be kitchen objects; fruits, vegetables, or plants; desk or office objects; tools; or geometrical designs.

The patient is asked to tell what the items are. If he begins to enumerate them, he is asked what there is alike about them. Abstract answers are best. The principle of classification used should be determined, that is, size, material, shape, or type of object. Ability to shift may be tested by asking the patient to classify the items by another principle. Scoring is subjective since only comparative function is ascertained. Capacity within normal adult limits is indicated if the subject gives an appropriate generic name for the objects, or if he gives a function or property that is common to them. Two points are given for an abstract response, one point for a concrete resemblance, and zero if no similarity is recognized. Adults of average intelligence will easily respond with three abstract answers for any three pictures shown. Brain-damaged patients will find it difficult to abstract common properties and to shift from one categorial concept to another.

PICTURE INTERPRETATION†

The functions examined here are ability to grasp the essentials of a given whole, to break up a given whole into parts and to isolate and synthesize them.

Two or more pictures are presented, each representing a scene involving a complicated situation or action. The subject is asked to tell what is happening in each one. The answer is counted successful when he is able to grasp the situation as a whole. Failure is denoted when the individual merely enumerates the objects in the picture.

An example from Wells and Ruesch[7] serves to illustrate. In "The Smashed Window," a man is pictured running out of the door of a house. With one hand he indicates a broken window and with the other he points accusingly at a little girl passing by on the sidewalk. A boy wearing a baseball cap is hiding behind a fence at the side of the house. A satisfactory interpretation would be one noting that the boy probably broke the window and is hiding, while the innocent girl is being erroneously blamed.

INTERPRETATION

Evaluation of test results is necessarily on a subjective level. In all cases, the method of approach used by the patient needs to be considered, whether it seems planned or haphazard. Performance must be compared with the estimated intellectual level and allowance made for below-average I.Q. However, the results in general are considered in the light of indications for further study. Patients who do poorly and those who make few errors and yet present other suspicious symptoms should be referred for more detailed psychological and neurological examination.

The first six subtests can be given in 15 to 20 minutes depending upon the responsiveness of the patient. The picture similarities and picture interpretation tests may require an additional 15 to 20 minutes to administer and score. The chart labeled Figure 3 illustrates the scoring principle.

INDICATIONS FOR USE

The test procedure is valuable for discriminating between functional and organic impairment. The conditions that can be included in the category of organic damage are many. A few examples will serve to illustrate its adaptability.[10]

	PASS	FAIL
I Estimated I.Q.		
II Digit Span	Forward: 7- good average, 6- low average, 5- marginal; Backward: 5- average, 4- marginal	Forward: 4 or less; Backward: 3 or less
III 100 minus 7	1 to 6 errors (average time: 2 minutes)	over 6 errors
IV Trail-Making	no errors (average time: 20 seconds	proceeds beyond 3 circles without correction of an error
V Hole-in-the-Board	1. Efficient plan of search -2 (Parallel, concentric lines 1/8" apart) 2. Any other plan -1	Unsystematic search without a plan = 0
VI Memory for Designs	7- high average, 6- average, 5- low average, 4- subnormal (borderline)	below 4 defective
VII Picture Similarities	Use of generic name of objects pictured. Ability to give a different mode of classification. (average: 3 responses for 5 pictures shown)	objects merely enumerated
VIII Picture Interpretation	Situation grasped as a whole	Objects merely enumerated

Fig. 3

*See Mental Examiners Handbook. F. L. Wells and J. Ruech. Psychological Corporation, New York, 1945, p. 160.

Conditions involving damage to the cerebral tissue as a result of trauma have received wide attention in the literature concerning war injuries. When the lesion is not severe enough, or if it is in an area which would give few or no neurological findings, a suitable test group may expose indicative deficiencies in responses.

Similarly, early degenerative changes may be detected in such conditions as general paresis, senile deterioration, cerebral arteriosclerosis, traumatic psychoses, and epilepsy. Degenerative changes in chronic alcoholism or other toxic psychoses may also be elicited. Again the warning must be reiterated that a negative response does not necessarily exclude brain damage; rather, more refined procedures are necessary to establish the diagnosis.

SUMMARY

1. The tests described are short enough to be included with the psychiatric examination when indicated.

2. They are varied in scope so as to sample the functions usually affected in brain damage.

3. They fit the requirements previously enumerated as appropriate for this screening device.

4. Conditions in which the test would be valuable are given.

Still-Hildreth Osteopathic Sanatorium

REFERENCES

1. Goldstein, K. and Scheerer, M.: Abstract and concrete behavior; an experimental study with special tests. Psychol. Monographs 53: No. 2. Am. Psychol. Assoc., Washington, D. C., 1941.

2. Armitage, S. G.: An analysis of certain psychological tests used for the evaluation of brain injury. Psychol. Monographs 60: No. 1. Am. Psychol. Assoc., Washington, D. C., 1946.

3. Levi, J.; Oppenheim, S., and Wechsler, D.: Clinical use of mental deterioration index of Bellevue-Wechsler scale. J. Abnorm. & Social Psychol. 40:405-407, Oct. 1945.

4. Wechsler, D.: Measurement of adult intelligence. Ed. 3. Williams & Wilkins, Baltimore, 1944.

5. Ruesch, J.: Intellectual impairment in head injuries. Am. J. Psychiat. 100:480-496, Jan. 1944.

6. Allen, R. M.: The test performance of the brain injured. J. Clin. Psychol. 3: 225-230, July 1947.

7. Wells, F. L., and Ruesch, J.: Mental examiner's handbook. Psychological Corporation, New York, 1945.

8. Hayman, M.: Two minute clinical test for measurement of intellectual impairment in psychiatric disorders. Arch. Neurol & Psychiat. 47:454-464, March 1942.

9. Benton, A. L. and Howell, I. L.: Visual retention test for clinical use. Arch. Neurol. & Psychiat. 54:212-216, Sept. 1945.

10. Strecher, E. A. and Ebaugh, F. G.: Practical clinical psychiatry for students and practitioners. Ed. 2. The Blakiston Co., Philadelphia, 1944.

ADDITIONAL REFERENCES

Benton, A. L. and Howell, I. L.: Use of psychological tests in evaluation of intellectual function following head injury: report of case of post-traumatic personality disorder. Psychosom. Med. 3:138-151, April 1941.

Tooth, G.: Use of mental tests for the measurement of disability after head injury. J. Neurol., Neurosurg. & Psychiat. 10:1-11, Feb. 1947.

Zangwill, O. L.: Review of psychological work at the Brain Injuries Unit, Edinburgh, 1941-1945. Brit. M. J. 2:248-251, Aug. 25, 1945.

ABSTRACT OF PAPERS PRESENTED AT THE OHIO STATE ASSOCIATION OF OSTEOPATHIC PHYSICIANS AND SURGEONS

MID-WINTER CONFERENCE, FEBRUARY 1946

Abstracted by Thomas J. Meyers, M.A., D.O., F.A.C.N.

"THE MENTAL HYGIENE MOVEMENT OF TODAY"

Edwin F. Peters, Ph.D.

Of all the men who received medical discharges from the Army, Navy, Marines and Coast Guard more than 50 per cent received them for reasons other than physical. These men are returning home and will require care. Dr. Peters based his approach to his experiences with 10,000 men in the Navy who had gotten into trouble. While infectious diseases have decreased, mental diseases have increased.

The story of Clifford Beers is told and the founding of the National Committee for Mental Hygiene. Mental hygiene is that science which refers to the prevention of inadequate adjustment and to the processes by which maladjusted individuals are restored to normal living. Mental hygiene is based upon the psychology of adjustment. It is divided into two parts: First, positive guidance in the ordinary course of life; second, thwarting maladjustment.

It is imperative for the physician of today to be so trained in psychology that he readily recognizes various symptoms and is able to treat them.

"THE AIMS AND TECHNIC OF CLINICAL PSYCHOLOGY"

Ralph Berdie, Ph.D.

Applied psychology consists of the application of psychological attention to practical life. It can be divided into industrial psychology, educational psychology, military psychology, consulting psychology, and clinical psychology.

The psychologist in the Army induction station examined men sent from the draft boards and picked out paralytics, illiterates, and mental defectives and shunted them to the psychiatrist. He also worked with intelligence tests. At a Marine recruit training camp, the author, a psychologist, had referred to him men with psychological problems. These men were interviewed and tested and in conjunction with the psychiatrist and social worker a disposition was worked out.

The work of the clinical psychologist consists in testing intelligence, handling problems of reading disability, learning problems, problems of educational guidance with vocational implications, speech defects, industrial personnel work, and marital maladjustments. The clinical psychologist serves as a consultant in obscure problems in which there is a mental involvement. He also gives various tests, such as educational achievement tests, tests for intellectual deterioration, trade tests, and aptitude tests.

"PHYSICIAN, TEACHER AND FAMILY RELATIONSHIP"

Edwin F. Peters, Ph.D.

Every physician has patients in whom he must build confidence before treatment can be given. To do this it is necessary to know a great deal about the patient's past history and his environment. Human personality and behavior are formed by the trial and error process. All information must be integrated before a diagnosis can be made. Mental hygiene treatment is like other treatment; it must have a purpose. Much emphasis is placed on mental hygiene in the field of education. Insecurity is back of many of the emotional problems of people who consult doctors. The physician, teacher, and parents must work together if a wholesome well-integrated personality is to be developed. The family doctor has an advantage over the specialist in this relationship, in that he knows the details of the family from a personal standpoint. Harsh treatment, severe physical punishment, constant nagging and criticisms are bad mental hygiene for any child.

"THE PHYSICIAN AS AN INTERVIEWER"—Ralph Berdie, Ph.D.

This talk concerned the use of tests such as the Army tests, Binet intelligence test, Rorschach and Minnesota Multiphasic Personality Inventory. These are described and their use outlined.

"PSYCHONEUROSIS"—Walter Bromberg, M.D.

Humans are equipped with three basic instincts: preservation of life, sexual striving, and a striving centering around conduct. These are all associated with the wish for pleasure. The training and development of these strivings makes for health or neurosis. The freudian hypothesis is used to explain this development.

"FACTORS OF HUMAN ADJUSTMENT"—Edwin F. Peters, Ph.D.

Mental ability cannot be summed up under any one category of intelligence. Spearman's two factor (G-S) theory was criticized as to its applicability. A brief explanation of statistics in psychology is given, and the construction of mental tests in the Army. Everyone forms habits to satisfy some motive, but to adjust is as normal as eating and sleeping. The two most common mechanisms of adjustment are dreaming and repression. These mechanisms may be classified by the type of response they display of which there are usually five: Adjustment by withdrawing, adjustment by defense, persistent nonadjusted reaction, adjustment involving fear, adjustment ailments.

Persistent and intensive behavior is usually caused by an inferiority attitude. No two persons are alike in personality any more than two persons have fingerprints alike. The three significant items in the development of a personality are: Change of education from mass to individual, insight into one's own makeup with a knowledge of one's own problems, development of a personal philosophy of life.

"THE PHYSICIAN AS AN INTERVIEWER"—Ralph Berdie, Ph.D.

Psychological tests and the interview help the physician to arrive at a judgment of his patient. The interview also serves as a diagnostic and therapeutic aid. Interviewing is important wherever one deals with people. There are therapeutic interviews, those aimed at changing behavior, and diagnostic interviews. Therapeutic sessions may be directive or nondirective. A first objective of the interviewer is to establish confidence in the patient. He must realize that the patient is a complete organism, body and mind. It is necessary to be careful about quick judgment, for the certainty that the interviewer feels is not related to accuracy. The interviewer must be careful about the "halo" effect of his client, and not allow it to confuse a true appraisal of his state. The interviewer is also prone to err by making generalizations from inadequate data Another error is called error of association, in which the client receives a reflection of earlier associations of the interviewer.

Interviewing may be improved as follows: Recognize the errors and try to avoid them; objectify the interview and report it; check on truth of judgments made; get all the facts, and not speculate about events, find out for sure about what has happened.

Therapeutic interviews are helpful as aids in obstetrics, preparing patients for surgery and medical practice. They may be used to motivate a patient and to educate families. The interview is a process of learning, which is a process of repetition, retaining most recent experiences, and being impressed by the most intense teaching. No learning takes place unless there is a goal to be obtained.

"PSYCHOTHERAPY OF NERVOUS CONDITIONS"
Walter Bromberg, M.D.

The doctor is the main instrument in psychotherapy. The first requisite is that the doctor know himself. It is important that he have a knowledge of cultural groups and racial backgrounds. The big problem in psychiatry is not diagnosis; it is treatment. Patients want relief from guilt feelings before relief from pain or physical symptoms. The doctor serves, often as the recipient of anger and bitterness by the patient, who comes wishing (unconsciously) to prove that the doctor is wrong.

Psychotherapy deals with simple things, with simple movements constituting hate, love, sex, hunger, and ego gratification. There are two aspects of psychotherapy, one is insight and the other is emotional relief. The latter can often be given by sedatives and a little suggestion.

Depressive cases do well on a specified daily routine and the judicious use of benzedrine. Reassurance has value even when simple. Everything the doctor does has suggestive value. Hypnosis has definite value, but it is really not the trance that is necessary, but rather the removal of some of the fear, antagonism, and embarrassment, in order to get the patient to accept suggestion.

There is such a thing as nonverbal reassurance and suggestion by simply sitting quietly and listening. The rule in therapy is to listen, give support verbally only when necessary, and not to say too much.

"PSYCHOTHERAPY OF NERVOUS CONDITIONS (2)"
Walter Bromberg, M.D.

In handling children, parents can give them a proper amount of affection, but the underlying, unconscious bias of these parents becomes evident in the child's feelings.

Conflict is basic in us as individuals, and what can be done is usually a conciliation or compromise; you cannot remake people.

Psychoanalysis is expensive and time consuming. The most favorable age for patients is between 20 and 30. The procedure is to put the patient on a couch while the physician sits off to one side, leaving the patient a blank wall to look at. Then he is encouraged to say whatever comes to his mind. The analyst watches the stream of talk and selects what he wants to follow.

Every slip in speech and behavior is meaningful. Dreams are avenues into the unconscious mind and analysis is concerned with their interpretation. Transference is a phenomenon which may be positive or negative and consists of a representation of the feeling of the patient for his parents transferred to the doctor. These transference reactions are impulsive and childlike. The phantasy life of a child is the neurosis of the adult.

Insight is necessary in an analytic cure. This is attained by ventilation of early experience material in the patient's mind. The doctor must be passive, saying nothing most of the time. It is difficult to say what is in one's mind, and so there is much rationalizing, reflecting and repressing. However, as analysis progresses the patient resolves the neurosis and makes a new adjustment to reality.

"PRACTICAL ASPECTS OF MENTAL HYGIENE"
Edwin F. Peters, Ph.D.

Whether he realizes it or not, every physician is involved in the practice of mental hygiene.

PSYCHOSOMATICS

Psychiatrists have not yet recovered from their surprise at the medical sensation produced by the introduction of the word psychosomatics into the language of medicine. They approve highly the provocative thinking induced by the word but are somewhat amazed that so frequently it is regarded as designating an original contribution. Psychosomatic medicine was announced at least two thousand five hundred years ago, when the wise Socrates on returning from the second Thracian campaign chided the Athenian physicians for not realizing, as did the Thracians, that the body would not be cured without the mind. "This," he said, "is the reason why the cure of many diseases is unknown to the physicians of Hellas, because they are ignorant of the whole."—Edward A. Strecker, M.D., *Journal of the American Medical Association*, August 30, 1947.

Conventions and Meetings

Announcements

American Osteopathic Association, Annual Meeting, Boston, July 19-23 inclusive. Program Chairman, George W. Northup, Morristown, N. J.

Academy of Applied Osteopathy, Boston, Mass., July 23, 24, 1948. Program Chairman, Robert S. Roscoe, Cleveland, Ohio.

Alabama: See Southeastern Conference.

American Association of Osteopathic Colleges, Palmer House, Chicago, December 14, 15. J. S. Denslow, Kirksville, Mo., secretary-treasurer.

American College of Osteopathic Internists, College of Osteopathic Physicians and Surgeons, Los Angeles, March 20-24, 1948. Program Chairman, A. L. Pettigrew, Long Beach, Calif.

American College of Osteopathic Pediatricians, New York City, April 2, 1948. Program Chairman, William S. Spaeth, Drexel Hill, Pa.

American College of Osteopathic Surgeons, Hotel Claridge, Atlantic City, N. J., October 10-14, 1948. Program Chairman, J. O. Watson, Columbus, Ohio.

American Osteopathic Society of Proctology, Baker Hotel, Dallas, Tex., February 18-20, 1948. Program Chairman, Carl S. Stillman, Jr., San Diego, Calif.

American Osteopathic Society for the Study and Control of Rheumatic Disease, Boston, July 18, 1948. Program Chairman, Elizabeth S. Carlin, Hempstead, L. I., N. Y.

Arkansas, Little Rock, May, 1948. Program Chairman, H. V. Glenn, Stuttgart.

Board of Trustees, American Osteopathic Association, Palmer House, Chicago, December 13-16.

California, Bakersfield, March 31, April 1-3, 1948. Program Chairman, Orville L. Hastings, Long Beach.

Child Health Conference and Clinic, Municipal Auditorium Arena and Little Theatre, Kansas City, Mo., May 10-12, 1948. Program Chairman, L. Raymond Hall, Kansas City, Mo.

Divisional Society Conference on Public Health Education, American Osteopathic Association, Sherman Hotel, Chicago, February 1, 2, 1948.

Eastern Osteopathic Association, Hotel Pennsylvania, New York City, April 3, 4, 1948. Program Chairman, Chester Losee, Westfield, N. J.

Florida: See Southeastern Conference.

Georgia, Ansley Hotel, Atlanta, May 27-29, 1948. Program Chairman, Chan L. Plair, Albany. See also Southeastern Conference.

Idaho: See Northwest Osteopathic Convention.

Illinois, Joliet Hotel, Joliet, April 22-25, 1948.

Indiana, Anthony Hotel, Fort Wayne, May 14, 15, 1948. Program Chairman, C. W. Dygert, Fort Wayne.

Iowa, Hotel Fort Des Moines, Des Moines, May 17, 18, 1948. Program Chairman, H. L. Gulden, Ames.

Kentucky, Louisville, October, 1948. Program Chairman, Harold D. Benteen, Ashland.

Maine, Elmwood Hotel, Waterville, December 4-6. Program Chairman, E. I. Whitney, Oakland.

Massachusetts, Hotel Kenmore, Boston, January 17, 18, 1948.

Minnesota, Lowry Hotel, St. Paul, May 14, 15, 1948. Program Chairman, E. S. Powell, St. Paul.

Missouri, Jefferson Hotel, St. Louis, October 18-21, 1948. Program Chairman, J. R. Dougherty, Vandalia.

North Carolina: See Southeastern Conference.

North Dakota, Bismark, May 1948. Program Chairman, J. O. Thoreson, Bismark.

Northwest Osteopathic Convention, Davenport Hotel, Spokane, Washington, June 14-16, 1948. Program Chairman, E. D. Mosier, Puyallup, Wash.

Ohio, Columbus, May 9-11, 1948. Program Chairman, W. W. Custis, Dayton.

Oregon: See Northwest Osteopathic Convention.

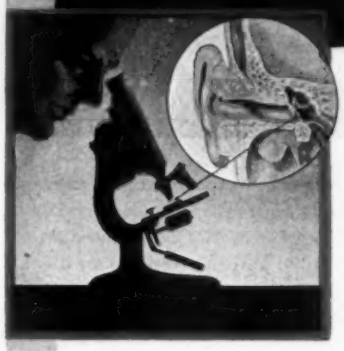
Osteopathic Academy of Orthopedists, Kansas City, Mo., February 26-28, 1948. Program Chairman, Leonard C. Nagel, Kansas City, Mo.

South Carolina: See Southeastern Conference.

Southeastern Conference, Atlanta, Ga., May 27-29, 1948.

Tennessee, Nashville, October 1948. Program Chairman, Perry Bynum, Mem-

PIONEERS in Research . . . and Leadership thru the years in combating OTITIS MEDIA



DOHO in realizing the need for a potent, topical, well tolerated ear medication, yet mindful that no one formula could be suitable for all conditions . . . devoted every facility and scientific resource to the development and perfection of AURALGAN and OTOSMO-SAN. Each has its sphere of usefulness . . . each has been tested and clinically proven in many thousands of cases. *Reprints and substantiating data sent on request.*

EACH A SPECIFIC . . . both effective!

Auralgan IN ACUTE OTITIS MEDIA

is a scientifically prepared, completely water-free Glycerol (DOHO) having the highest specific gravity obtainable, containing antipyrine and benzocaine . . . which by its potent decongestant, dehydrating and analgesic action provides effective relief of pain and inflammation.

O-TOS-MO-SAN IN CHRONIC SUPPURATIVE OTITIS MEDIA, FURUNCULOSIS AND ANAL DERMATITIS

is not just a mere mixture, but a scientifically potent chemical combination of Sulfathiazole and Urea in AURALGAN Glycerol (DOHO) base . . . which exerts a powerful solvent action on protein matter, liquefies and dissolves exuberant granulation tissue, cleanses and deodorizes, and tends to exhilarate normal tissue healing in the effective control of chronic suppurative otitis media.

Literature and samples on request

THE DOHO CHEMICAL CORPORATION
New York 13, N. Y. • Montreal • London

Especially Valuable
in these Frequently Encountered
CUTANEOUS AFFECTIONS

ECZEMA
PSORIASIS
RINGWORM
OCCUPATIONAL DERMATITIS
FOLLICULITIS
SEBORRHEIC DERMATITIS
INTERTRIGO
PITYRIASIS
PRURITUS
TINEA CRURIS

Its wide range of therapeutic applicability and dependable efficacy make Tarbonis useful in the management of a host of skin conditions encountered daily. Tarbonis provides tar therapy in its most advantageous form. Its chief active ingredient (5 per cent) is a special process alcoholic extract of selected crude coal tars which exerts the characteristic action of tar, but is not burdened by the disagreeable odor and color of tar. Containing also menthol and lanolin in a vanishing cream base, Tarbonis is odorless, stainless, greaseless, and nonsoiling. When infection supervenes, Sul-Tarbonis—incorporating 5 per cent sulfathiazole in Tarbonis—is indicated.

Physicians are invited to send for samples and literature.

THE TARBONIS COMPANY
4300 Euclid Avenue • Cleveland 3, Ohio

Tarbonis is packaged in 2¼ oz., 8 oz., 1 lb. and 6 lb. jars.

TARBONIS
SUL-TARBONIS

Sul-Tarbonis is supplied in 2¼ oz. and 1 lb. jars.

phis. See also Southeastern Conference.

Texas, Rice Hotel, Houston, April 15-18, 1948. Program Chairman, William S. Gribble, Jr., Houston.

Virginia, John Marshall Hotel, Richmond, April 9, 10, 1948. Program Chairman, A. G. Churchill, Arlington.

Washington: See Northwest Osteopathic Convention.

West Virginia, McClure Hotel, Wheeling, May 30, 31, June 1, 1948.

OFFICIAL AND AFFILIATED ORGANIZATIONS

CALIFORNIA

Los Angeles City

"Anatomy of the Lower Right Quadrant" was to be presented by Richard Stewart, Ph.D., at the meeting October 13 at Los Angeles.

West Los Angeles

Dr. Lee Travis of the University of Southern California was scheduled to speak at the meeting November 11 at Los Angeles.

DELAWARE

State Society

David Shuman, Philadelphia, spoke on "The Hypermobile Joint" at the meeting October 6 at Wilmington.

Hospitals

The officers are: President, Leonard C. Lipscomb; vice president, John C. Bradford; secretary, Henry George; treasurer, Raymond H. Richards, all of Wilmington.

FLORIDA

State Society

It was announced in advance that the program for the fall conference to be held at Daytona Beach November 1, 2 was to include the following: Eye, ear, nose and throat, E. B. Decker; major surgery, John S. Hull; proctological demonstrations, L. A. Robinson; x-ray, Robert E. Wilson; arthritis, Clement Heberle; office gynecology, Calvin J. Houpt; cardiology, Donald S. Cann; anesthesiology, R. W. Murphy; surgical preparation, Robert L. Beckwith; laboratory procedure, L. J. Robinson; osteopathic technics of low back and anomalies, Richard B. Houghton, all of Daytona Beach.

District Two

C. S. P. Ball, Cocoa Beach, spoke on endocrinology at the regular meeting at Jacksonville in October.

District Eight

Louis Sigal, Miami, spoke on surgical emergencies and a motion picture on varicosities was shown by a representative of the Searle Co. at the meeting October 7 at Miami.

ILLINOIS

Peoria County

The officers are: President, Lee G. Thompson; vice president, Dean Sperry; secretary-treasurer, Cecile O. Thompson, all of Peoria.

District One

The officers were reported in the July JOURNAL.

The trustees are: Seaver A. Tarulis; Alfred C. Boehm; S. V. Robuck, all of Chicago; Ernest R. Peterson, Oak Park; Floriene A. Mauer, Evanston.

The committee chairmen are: Legislation, Dr. Peterson; membership, J. G. Wagenseller; ethics, S. Edward Stanley; hospitals, K. R. M. Thompson; clinics, Ward E. Perrin; statistics and unit contact, Charles E. Gaddie; vocational guidance, Metta Davis Keith; public health, Leon E. Page; industrial and institutional service, Ellis Siefer; public relations, Dr. Boehm; professional affairs, E. C. Borton; program and public affairs, Earl J. Drinkall; insurance and veterans' affairs, George O. Rose; visual education, Jack H. Grant; professional education, R. N. MacBain; Red Cross, Earl F. Frisbie; public education, A. H. Fisler; editorial, Frank C. Brandenburg; radio, M. A. Tengblad; maternal health and welfare, Margaret Barnes; old age assistance, Floyd F. Peckham, all of Chicago; speaker's bureau, Robert N. Evans, La Grange.

Harold W. Fitch, Bushnell, president of the Illinois Osteopathic Association, and Mrs. Douglas D. Waitley, Evanston, president of the women's auxiliary, were scheduled to speak at the meeting in Chicago November 6.

District Four

Case histories from the Chicago Hospital were to be discussed by W. M. Buckler, Bloomington, at the meeting scheduled to be held at Eureka November 20.

District Five

"Anomolies of the Lumbosacral Area" and "Association Affairs" were the subjects of speeches presented by Harold Fitch, Bushnell, at the meeting at Hoopeston October 30.

A meeting is scheduled to be held January 8, 1948, at Homer.

INDIANA

State Society

J. E. Carter, Fort Wayne, is chairman of the exhibit committee

State Society Auxiliary

The officers are: President, Mrs. Paul van B. Allen, Indianapolis; vice president, Mrs. Lee W. Yoder, Wabash; secretary-treasurer, Mrs. H. E. Eastman, Richmond.

The committee chairmen are: Public relations, Mrs. J. E. Carter, Fort Wayne; publication, Mrs. Gaile G. Jackson, Vincennes; legislative study, Mrs. Herman Rinne; ways and means, Mrs. Joseph Kenney, both of Indianapolis; program, Mrs. G. W. Dygert, Fort Wayne.

District One

Mr. Elmer W. Sherwood, executive secretary, was scheduled to speak at the meeting in Indianapolis October 22.

IOWA

First District

"Osteopathy in the World Picture," was the subject of a speech given by Mr. Frank Miles, public relations counsel, at the meeting at Cedar Rapids October 6.

The officers are: President, B. A. Wayland, Cedar Rapids; vice president, George Boston; secretary-treasurer, John Campbell, both of Davenport. All were re-elected.

Howard R. Patterson, Davenport, and David Grau, Muscatine are trustees.

Second District

The officers are: President, E. W. Kapfer, Creston; vice president, A. D. Bell, Anita; secretary-treasurer, E. J. Luebbers, Harlan.

Fifth District

The officers are: President, D. L. Widmer, Paullina (re-elected); vice president, John W. Hirschman, Cherokee; secretary, George W. Marston, Schaller.

KANSAS

State Society

The officers are: President, Alfred C. Syler, Hutchinson; president-elect, James B. Donley, Kingman; vice president, Frank W. Shaffer, Salina, (re-elected); secretary-treasurer, Forrest H. Kendall, Holton, (re-elected).

O. C. Kappler, Liberal, William S. Childs, Salina, and C. B. Myers, Madison, are the trustees.

KENTUCKY

State Society

The officers are: President, Ellis Day, Whitesville; vice president, Harold Benteen, Ashland; secretary, Martha Garnett; treasurer, Nora Prather, both of Louisville, both re-elected.

The trustees are: Henry P. Lawrence, Hawesville; J. W. Lawrence, Paducah; E. W. Patterson, Louisville; E. H. Bouton, Frankfort; F. V. Chambers, Owensboro.

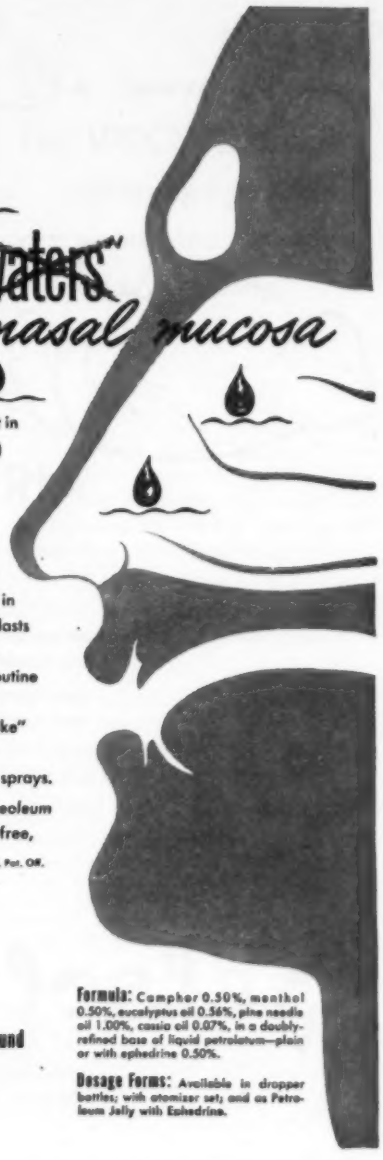
The committee chairmen are: Program, Dr. Benteen; membership, Dr. Prather; vocational guidance, Dr. Patterson; public health and education, Dr. Bouton; industrial and institutional, C. W. Barnes; ethics, A. B. Johnson, both of Louisville; public and professional welfare, Dr. Chambers; publicity, L. A. Anderson, Louisville.

State Society Auxiliary

The officers are: President, Mrs. C. H. Robertson, Owensboro; vice president, Mrs. Orville Mayfield, Sacramento; secretary-treasurer, Mrs. Henry P. Lawrence, Hawesville.

For the Coryza Patient . . .

"oil on troubled ~~waters~~" nasal mucosa



When a cold strikes and nasal membranes react in stormy protest (turgescence, hyperesthesia, etc.) "*Pineoleum*"* Compound's emollient oils frequently bring gratifying relief and protection. Gently spreading an adherent, oily film over irritated mucosa, it "seals in" the natural moisture, without impairing the efficiency of mucociliary defenses. While rapid in onset, *Pineoleum's* protective action long outlasts that of many aqueous sprays — and has been established, clinically, as perfectly safe for routine adult use.[1,2] It is particularly indicated in the precursor stage of the rhinitides, in "desert-like" climates (common in heated apartments and homes) and following treatment with aqueous sprays.

For the restoration of patent nasal airways, *Pineoleum* with Ephedrine provides a potent, but rebound-free, dosage of ephedrine.

*Reg. U. S. Pat. Off.

1. Griesman, B. L.: Arch. Otolaryngology, 39:124, 1944.
2. Novak, F. J., Jr.: Arch. Otolaryngology, 38:241, 1943.

BAYBANK

PINEOLEUM compound

PLAIN OR WITH EPHEDRINE

BAYBANK PHARMACEUTICALS, INC.

New York 4, New York

Division of Chesebrough Mfg. Co. Cons'd.

Formula: Camphor 0.50%, menthol 0.50%, eucalyptus oil 0.56%, pine needle oil 1.00%, cassia oil 0.07%, in a doubly-refined base of liquid petrolatum—plain or with ephedrine 0.50%.

Dosage Forms: Available in dropper bottles; with atomizer set; and as Petroleum Jelly with Ephedrine.

LOUISIANA

State Society

The program for the annual meeting held at Baton Rouge October 11, 12 included "Principles of Osteopathy," "Factors that Influence Osteopathic Treatment," and "Structural Films" by Wallace M. Pearson, Kirksville, Mo.

The officers are: President, Carl E. Warden, Lake Charles; vice president, Paul M. Campbell, Minden; secretary, V. L. Wharton, Lake Charles (re-elected); treasurer, A. E. Stanton, Crowley.

The trustees include all the officers and J. R. Kidwell, Baton Rouge; Gordon Slemons, Shreveport, R. H. Walton, New Orleans, and W. L. Stewart, Alexandria.

The officers are: Membership, T. R. Gilchrist, Shreveport; legislation and legislative funds, Dr. Stewart; vocational guidance, Dr. Stanton; professional education and development and convention program, M. R. Higgins, Lafayette; public relations, professional and public welfare, statistics, and editor, Charles C. Rahm, Hammond; ethics and censorship, Dr. Slemons; public health and education, William C. Conner, New Orleans; Osteopathic Progress Fund, Dr. Kidwell.

MAINE

State Society

The annual fall meeting is scheduled to be held at Waterville December 4-6.

MARYLAND

State Society

The officers are: President, W. H. Waugaman, Cumberland; vice president, Ernest R. MacDonald, Riva; secretary-treasurer, Joseph W. Lindstrom, Baltimore.

The committee chairmen are: Legislative and ethics, Frank B. Tompkins;

AIR is *not* free...

During dyspnea attending asthma and bronchitis, *air is not free*—every breath is bought at the price of exhausting effort on the part of your patient.

Relieve paroxysmal respiratory distress with the oral administration of prompt, *convenient* FELSOL.

Also recommended for the symptoms commonly associated with hay fever, and for neuralgic headache.

FELSOL contains antipyrine, iodopyrine, citrated caffeine, and lobeline sulphate. Available in boxes containing 15 and 90 one-gram powders.

Felsol

Professional samples and literature upon request.
AMERICAN FELSOL COMPANY • LORAIN, OHIO

public affairs, Dr. Lindstrom; program, Grace R. McMains, all of Baltimore; professional affairs, nominating, and auditing, Gifford E. Luke; vocational guidance, Evelyn C. Luke, both of Hagerstown; veterans, Dr. MacDonald.

MASSACHUSETTS

Middlesex South

Plans for the state convention were discussed at the meeting held at Cambridge October 9.

Mystic Valley

H. Earle Beasley, Boston, spoke on the essential points of a complete physical examination at the meeting held at Melrose October 30.

MICHIGAN

State Society

The annual postgraduate course and state convention were held in Grand Rapids November 2-6. The program, which was divided into general sessions, and special sections, included the following according to information announced in advance:

General Sessions: "Cardiac Emergencies," Frank R. Spencer, Columbus, Ohio; "Surgical Diagnosis of the Lower Abdomen and Pelvis," Edward G. Drew, Waterville, Me.; "Surgical Diagnosis of the Genitourinary Tract," H. Willard Sterrett, Philadelphia; "Surgical Diagnosis of the Upper Abdomen," Howard E. Lamb, Denver; "The American Osteopathic Association," Robert B. Thomas, President, A.O.A., Huntington, W. Va.

Eye, Ear, Nose and Throat Section: "The Nose and Upper Respiratory Diseases," D. L. Cummings, Grand Rapids; "Common Emergencies as Seen by the Hospital Resident in E.E.N.T.," Leroy Benoay, Highland Park; "Diagnosis and Treatment of Frequently Encountered Eye Diseases," Joseph Wyatt, Detroit; "The Improvement of Hearing in Otosclerosis by Fenestration," Helen T. and Lloyd A. Seyfried, Detroit.

Hernia and Varicose Vein Section: "Classification and Treatment of Hernia," C. C. Matheny, Detroit; "Classification and Treatment of Varicose Ulcers," L. E. Schaeffer, Detroit; "Varicose Veins with Saphenous Ligation" (Motion pictures), E. E. Ludwig, Rochester.

Internal Medicine Section: "Radiological Diagnosis of Peptic Ulcer," John H. Pulker, Grand Rapids; "Clinical Diagnosis and Medical Management of Peptic Ulcer," Dr. Spencer; "Surgical Management of the Complications of Peptic Ulcer," Dr. Drew. "Radiological Diagnosis of Lesions of the Urinary Tract," Charles S. Karibo, Highland Park; "Diagnosis and Management of the Kidney Disease," Ralph F. Lindberg, Highland Park; "Diagnosis and Management of the Obstructive Uropathies," Dr. Sterrett; "The Biochemical Evaluation of the Liver," Norman W. Arends, Ferndale; "Acute and Chronic Infectious Hepatitis," Neil R. Kitchen, Detroit; "Cirrhosis of the Liver," E. Deane Elsea, Detroit.

Manipulative Section: Rollin E. Becker, Pontiac, chairman, was to preside over demonstrations of spinal, extremity, and cranial manipulative procedures by Beryl E. Arbuckle, Philadelphia; Robert S. Roscoe, Cleveland, Ohio; Kenneth F. Kinney, Detroit; W. Powell Cottrille, and A. R. Becker, both of Jackson.

Obstetrics Section: "The Rh Factor in Obstetrics," Charles K. Norton, Royal Oak; "Positioning the Patient During Parturition," and "Prevention and Control of the Toxemias of Pregnancy," Julian L. Mines, III, Philadelphia; "Causes and Prevention of Cranial Injury During Parturition," Delle A. Newman, Detroit; "Cranial Technic in Cerebral Injury in the Newborn," Dr. Arbuckle.

Orthopedics Section: "Orthopedic Principles," "Principles Involved, Radiographic and Clinical Diagnosis and Orthopedic Management of Hip Fractures," and "Clinical Considerations of Factors Involved in Nonunion," J. Paul Leonard, Detroit; "Orthopedic Manifestations of Systemic Diseases," Dr. Lindberg; "Radiographic Diagnosis of Lower Extremity Fractures with Their Orthopedic Management," Dr. Karibo and Dr. Leonard; "Principles of Fracture Care," Wilson L. Brott, Highland Park; "Radiographic Diagnosis of Upper Extremity Fractures and Their Orthopedic Management," John P. Wood, Birmingham, and Dr. Karibo; "Differential Diagnosis of Pathologies of the Spine with Special Reference to Radiological Diagnosis," Edward P. Small, Highland Park; "Clinical Appraisal of Low-Back Pain with Reference to Arthritic Syndrome," Dr. Leonard; "A Year's Summary of Radiographic Examinations of Lumbar Spine and Pelvis, with Reference to the Comparative Number of Myelographic Pro-

cedures and Operations in Extradural Displacing Lesions," Dr. Brott; "Clinical Appraisal of Low-Back Pain with Reference to Retropulsion of Intervertebral Disc," Dr. Wood.

Proctology Section: "The Anatomy of the Anorectal Region," Dr. Ludwig; "The Diagnosis of Anorectal Pathology," Howard A. Duglay, Detroit.

Public Health Section: "Modern Obstetric Care," Alexander Campbell, M.D., Bureau of Maternal and Child Health, M.D.P.H.; "Disease Control," F. S. Leeder, M.D., Director of Disease Control, M.D.P.H.

Radiology Section: "Selection of X-Ray Patients in Cases Involving the Head, Neck, and Spine," Paul S. Bates, Traverse City; "The Fundamentals of Office Radiology," Preston M. Wells, Lansing; "The Radiological Diagnosis of Osteogenic Malignancies," Dr. Small; "Radiological Therapy in Dermatological Cases," James N. Fox, Trenton.

Surgery Section: "Intravenous Urography vs. Cystoscopy and Retrograde Pylography," Dr. Karibo; "The Recognition and Management of Inflammatory and Benign Pathologies of the Prostate Gland," Dr. Sterrett; "The Physiology of the Menstrual Cycle and the Danger of Promiscuous Glandular Therapy," Dr. Cottrille; "The Office and Hospital Management of Pathologies of the Cervix Uteri," Dr. Drew; "The Realm of Surgery in Thoracic Pathology," Donald J. Evans, Detroit; "Hysterectomy. What are its Indications?" Dr. Lamb.

W. H. Yeamans, Mount Clemens, assumed the presidency and the following officers were elected: President-elect, Harry P. Stimson, Highland Park; vice president, Campbell A. Ward, Mount Clemens (re-elected); secretary-treasurer, C. Ralph Morehouse, Albion; statistician, Ira C. Rumney, Ann Arbor; trustees, W. Carl Brenholtz, Flint; Hobart C. Moore, Bay City (re-elected); E. H. McKenna, Muskegon (re-elected) and O. L. Brooker, Rosedale. Leroy C. Johnson, Pontiac, is speaker of the House of Delegates and Philip E. Haviland, Detroit, vice speaker. Both were re-elected.

South Central

A meeting was held at Albion October 16, 1947.

MINNESOTA

State Society

The schedule for a series of meetings planned to be held throughout the state and the chairmen are: October 12, Duluth, Sara Wheeler; October 19, Detroit Lakes, Lester V. Long; October 26, Montevideo, E. C. Sheggeby; November 2, Windom, John L. Moore; November 9, Mankato, George A. Alexander; November 16, Rochester, C. R. Graham. Phil Morrison, Faribault, president of the state association, will be present at each of the meetings.

MISSOURI

State Society

The officers were reported in the November JOURNAL.

The committee chairmen are: Budget, R. B. Baize, Laddonia; convention program and professional education, J. R. Dougherty, Vandalia; constitution and bylaws, B. J. Mavity, Bonne Terre; county hospital, V. J. Devine, Kansas City; ethics and censorship and central office building fund, W. A. Rohlfing, Flat River; insurance, C. R. Beckmeyer, Eureka; Osteopathic Progress Fund, H. N. Tospon, St. Joseph; permanent building, W. L. Wetzel, Springfield; public relations and legislation, D. A. Squires, Fulton; radio, Charles Stephens, Kansas City; veterans' rehabilitation, Virgil Bailey, West Plains; vocational guidance, Lloyd E. Hutchins, Fulton.

State Society Auxiliary

The officers are: President, Mrs. H. N. Tospon, St. Joseph; first vice president, Mrs. L. T. Olson, St. Louis; second vice president, Mrs. J. R. Dougherty, Vandalia; secretary-treasurer, Benjamin M. Riles.

Hospital Association

The officers are: President, V. J. Devine, Kansas City; vice president, W. L. Landfather, Maryville; secretary, Mr. Lawrence Jones, Jefferson City.

The trustees are: Earl Laughlin, Jr., Kirksville, William P. Lenz, St. Joseph, and H. J. McAnally, Kansas City.

Central

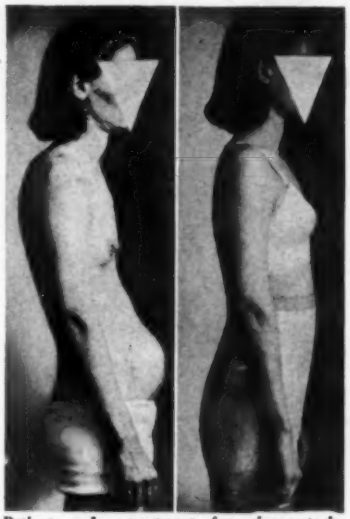
The officers are: President, Phillip Baker, Centralia; vice president, O. F. Carroll, Jr., Sturgeon; secretary, William H. McCormick, Moberly.

North Central

The officers were reported in the October JOURNAL.

The trustees are: M. E. Elliott, Chillicothe, and J. E. Prior, Milan.

The committee chairmen are: Ethics, legislation and public relations, Dr. Elliott; membership and veteran rehabili-



Patient under treatment for visceroptosis with symptoms without and with the Spencer Abdominal and Breast Supports individually designed for her.

a Spencer Support for VISCEROPTOSIS relieves symptoms, promotes a sense of well-being

Spiesman* found that "practically every ptotic patient" experienced relief of symptoms, increased energy and sense of well-being following application of proper abdominal support.

The physician can rely on Spencer for *proper support* because each Spencer is individually designed, cut, and made for each patient from detailed measurements and a complete description of that patient's body and posture.

With a Spencer, the correlation of abdominal and back support induces correct posture, modifies an unfavorable pelvic tilt. Ptosed organs are lifted to normal position to improve circulation. Better digestion, elimination, respiration often result.

For information about Spencer Supports, telephone your local "Spencer corsetiere" or "Spencer Support Shop", or send coupon at right.

* Spiesman, Manual G., *Visceroptosis*, Rev. of Gastro. 7:218:234 (May-June) 1940.

MAY WE SEND YOU BOOKLET?
SPENCER, INCORPORATED
129 Derby Ave., New Haven 7, Conn.
In Canada: Rock Island, Quebec.
In England: Spencer (Banbury) Ltd., Banbury, Oxon.
Please send me booklet, "How Spencer Supports Aid The Doctor's Treatment."
Name ..... D.O.
Street .....
City & State 12-47

SPENCER *INDIVIDUALLY DESIGNED* SUPPORTS
FOR ABDOMEN, BACK AND BREASTS

The Oath of Hippocrates
I SWEAR by Apollo the physician, and Asclepios, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation — to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. ¶ I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my Art. ¶ I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further from the seduction of females or males, of freemen and slaves. ¶ Whatever, in connection with my professional practice, or not in connection with it, I may see or hear in the lives of men which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. ¶ While I continue to keep this Oath unviolated may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!

We Salute...

the Physician for his untiring efforts to bring relief from suffering to those in need . . . for his continuous research and study to make improved techniques available to his patients. For these and his general service to mankind, we salute the Physician . . . and bid him Godspeed for the coming year.

B-D PRODUCTS
Made for the Profession

BECTON, DICKINSON & CO., RUTHERFORD, N. J.

tation, Paul Deem; hospitals and clinics, C. C. Enoch, both of Brookfield; statistics, Dr. Prior; professional education, B. I. Axtell, Princeton; vocational guidance, D. A. Bryan, Wheeling; aviation, H. P. Fowler, Brunswick; insurance, W. C. Wetzel, Carrollton.

Northwest

The officers are: President, Charles E. Bloom, Cameron; vice president, Wayne E. Maxwell, Savannah; secretary-treasurer, Marvin L. Ford, Elmo.

St. Louis

The officers were reported in the October JOURNAL.

The committee chairmen are: Professional education and program chairman, J. N. Stewart; public relations, public and professional welfare, G. R. Shoemaker; publicity and information, L. T. Olson; membership, A. T. Styles; sickness, H. S. Pickering; constitution and by-laws, S. H. Leibov; veterans' rehabilitation, W. E. Bailey; public health and safety, E. A. Roddy; hospitals, H. E. Kastning; vocational guidance, J. L. Hirst; distinguished service, Edward Sommers; ethics and censorship, E. R. Westaver; industrial and institutional service, J. S. Austin; Osteopathic Progress Fund, L. R. Garner; aviation, Harold Coe; insurance, J. D. Huff; statistics, Wayne Weaver, all of St. Louis; professional development, C. R. Beckmeyer, Eureka.

H. D. McClure, Kirksville, was to speak on diagnosis at the meeting scheduled to be held October 21 at St. Louis.

Southeast

The officers are: President, P. A. McGuerty, Cape Girardeau; vice president, W. D. Morris, Elvins; secretary-treasurer, Richard S. Davis, Bloomfield. B. J. Mavity, Bonne Terre, is trustee.

West Central

C. K. Edwards, Kansas City, spoke on obstetrics and C. F. Warren, Marshall, reported on the state convention at the meeting held at Sedalia October 16.

NEW HAMPSHIRE

State Society

The officers are: President, Ralph O. Hood, Berlin; vice president, J. F. Maxfield, III, South Newberry; secretary-treasurer, William L. Johnston, Manchester. All were re-elected.

The committee chairmen are: Legislation, Osmond Strong, Concord; vocational guidance, J. W. Parfitt, Jr., Manchester.

York County

Thomas MacFarlane, Portsmouth, spoke on poliomyelitis and a roundtable discussion of hospital problems was held at the meeting in Kittery in September.

NEW MEXICO

State Society

In the November issue of the JOURNAL, it was mistakenly reported that Charles A. Wheelon was chairman of the public health and sanitation committee. James H. Butler, Bernalillo, is chairman of that committee. We regret the error.

NEW YORK

New York City

At the meeting to be held at New York in January Blanche Allen, Bryn Mawr, Pa., and C. Haddon Soden, Philadelphia, will speak on Chapman's reflexes and Dr. Soden will correlate and summarize the osteopathic association of the speeches presented at the fall meetings.

OKLAHOMA

State Society

The officers are: President, H. W. Kenaga, Hugo; president-elect, G. R. Thomas, Oklahoma City; vice president, D. A. Shaffer, Ponca City; secretary-treasurer, G. R. Thomas; executive secretary, Mr. Walter L. Gray, both of Oklahoma City; both re-elected. H. R. Stuart, Checotah, is sergeant-at-arms.

The trustees are: L. R. Bell, Meeker, C. G. Ewing, Yale, Ray Thompson, Vinita, J. Mancil Fish, and A. G. Reed, Tulsa, LeRoy Gau, Enid, and C. R. Young, Freedom.

The committee chairmen are: Progress Fund, Dr. Fish; membership, Mr. Gray; professional education, G. E. M. Risberg, Chickasha; hospitals, C. W. Ball, Blackwell; vocational guidance, Francis Funk; industrial and institutional, C. P. Harth, both of Tulsa; clinics, D. W. Streitenberger, Ponca City; statistics, F. A. Englehart; public relations, Dr. Thomas; general convention chairman, D. B. Heffelfinger, all of Oklahoma City; public health education, Dr. Reed; veterans' affairs, Dr. Bell.

Hospital Association

The officers are: President, C. W. Ball, Blackwell; vice president, W. E. Pool, Lindsay; secretary-treasurer, H. R. Stuart, Checotah. H. E. Williams, Ardmore, and M. A. Kiesel, Hinton, are members of the executive committee.

Eastern

C. E. Dickey, Eufaula, spoke at the meeting held at Muskogee October 30.

The officers are: President, Fred Oliver, Sallisaw; vice president, Robert R. Stanley, Haskell; secretary-treasurer, Lucien Nelms, Coweta.

PENNSYLVANIA

State Society Auxiliary

The officers are: President, Mrs. John Ulrich, Steelton; president-elect, Mrs. Roy Hughes, Indiana; vice president, Mrs. Harold L. Miller, Harrisburg; corresponding secretary, Mrs. William Blacksmith, Lemoyne; secretary-treasurer, Mrs. James M. Hotham; parliamentarian, Mrs. Ernest L. Markey; both of York.

TENNESSEE

State Society

The officers are: President, H. Perry Bynum, Memphis; president-elect, M. E. Coy, Jackson; vice presidents: James Winn, Clarksville, R. C. Hart, Chattanooga, and L. D. Elliston, Covington; secretary-treasurer, Helen Terhuwen, Nashville (re-elected).

L. D. Chesemore, Paris, is trustee.

The committee chairmen are: Legislation, Dr. Chesemore; veterans' affairs, Richard Sharp, Kingsport; Federal-state co-ordinator, Dr. Terhuwen; industrial and institutional, Walter Baker; editorial, radio and publicity, Fred Butin; vocational guidance, Mary Davis, all of Memphis; membership, O. Y. Yowell, labor contact, Richard Broughton; censorship and ethics, Elizabeth Yowell; hospitals, J. N. Gill, all of Chattanooga; education, Ernest Bechtol, Clinton; public and professional welfare, Stanley Pettit, Cleveland; Osteopathic Progress Fund, J. Allan Johnson, Bristol; convention program, Dr. Bynum.

TEXAS

State Society Auxiliary

The officers are: President, Mrs. M. S. Miller, Fort Worth; president-elect, Mrs. Louis Pittman, Borger; vice president, Mrs. L. C. Edwards, San Antonio; secretary-treasurer, Mrs. George J. Luibel, Fort Worth; corresponding secretary, Mrs. W. W. Badger, Houston.

The committee chairmen are: Legislative, Mrs. J. Francis Brown, Amarillo; hospitals and clinics, Mrs. Boyd B. Henry, Corpus Christi; publicity and publication, Mrs. C. R. Nelson, Austin; public relations, Mrs. R. E. Morgan, Dallas.

Nueces

The officers are: President, W. N. Tinnerman, Aransas Pass; vice president, Robert Brune; secretary, C. R. Woolsey, both of Corpus Christi.

UTAH

State Society

Homer D. Cate, Tooele, was to speak at the meeting scheduled to be held at Salt Lake City, November 9.

State Society Auxiliary

The officers are: President, Mrs. E. O. Bauman, Salt Lake City; first vice president, Mrs. W. G. Hale, Logan; second vice president, Mrs. E. F. Waters; secretary-treasurer, Mrs. C. E. Conklin, both of Salt Lake City; parliamentarian, Mrs. P. H. Prindle, Ogden.

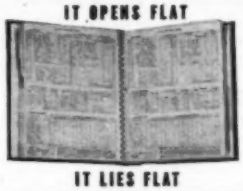
A few minutes a day is all the time it takes to maintain complete, accurate records of your calls, receipts and expenses with "Histacount". Bookkeeping drudgery is eliminated, doubts and guesses removed, tax overpayments avoided. For $6.75 you receive a loose-leaf or plastic-bound book of 365 daily record pages, 12 monthly and one annual summary sheets, social security and other tax forms, and complete instructions . . . refills for the loose-leaf system cost only $3.35 a year. So simple, so easy and dependable, once you use the "Histacount" record system you'll consider no other.

Let us send "Histacount" for your inspection . . . if you return it within 20 days in good condition the purchase price will be refunded immediately.

MORE THAN 50,000 DOCTORS USE
HISTACOUNT
DOCTORS' OFFICE RECORDS

MAIL COUPON FOR 20 DAY FREE TRIAL OR FULL DETAILS

IT OPENS FLAT



IT LIES FLAT

PROFESSIONAL PRINTING CO., INC.
15 East 22nd St., New York 10, N. Y.

Send me, on 20 day approval, your simplified "Histacount" record system in ☐ Loose-leaf form ☐ Plastic-bound form.

Enclosed is my ☐ check, ☐ money order for $6.75, or ☐ send C.O.D. It is understood that if I return the "Histacount" within 20 days you will refund the $6.75 at once.

☐ Send full details on "Histacount". A.O.A.

Dr. .....
Street .....
City..... State.....

"Histacount" IS ALSO AVAILABLE AT YOUR SURGICAL SUPPLY HOUSE.

VIRGINIA

State Society

The officers were reported in the July JOURNAL.

The committee chairmen are: Program, A. G. Churchill; hospitals, Frank C. Hudgins, both of Arlington; publications and statistics, Harold A. Blood; legislation and progress fund, Felix D. Swope; veterans' rehabilitation, William C. Spence, all of Alexandria; public and professional welfare, B. D. Turman; Federal-state coordinator, H. S. Liebert; ethics, Margaret E. Bowen; public health and safety, Gena L. Crews, all of Richmond; vocational guidance, professional education, Leslie R. Luxton, Waynesboro; industrial, institutional and insurance service, H. H. Bell, Petersburg; constitution and bylaws, C. C. Akers; credentials and resolutions, M. F. Stephens, both of Lynchburg. All were re-appointed.

WASHINGTON

State Society Auxiliary

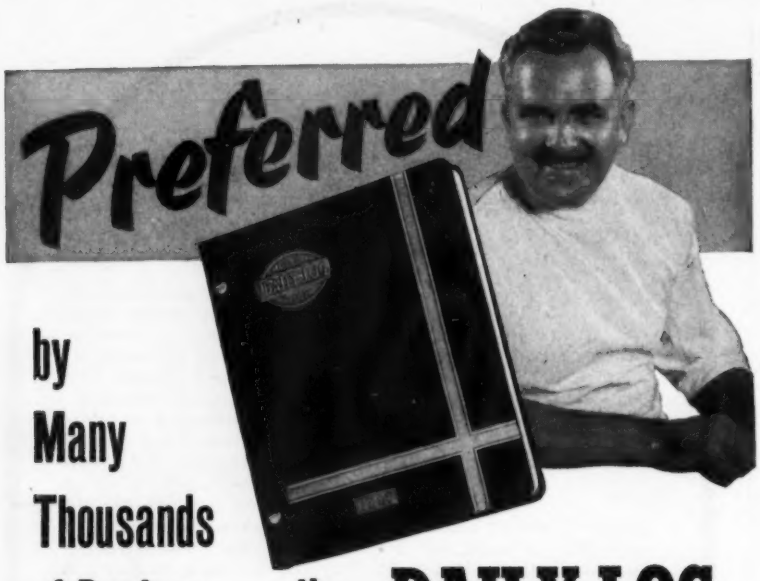
The officers are: President, Mrs. V. E. Holt, Yakima; president-elect, Mrs. Einer Petersen, Tacoma; first vice president, Mrs. G. P. Lewis, Seattle; second vice president, Mrs. E. V. Hoover, Tacoma; secretary-treasurer, Mrs. A. V. Dunn, Vancouver; corresponding secretary, Mrs. R. L. Herr, Yakima; historian, Mrs. W. F. Waldo, Seattle.

The committee chairmen are: Membership, Mrs. Petersen; program, Mrs. Lewis; public relations and student loan, Mrs. Hoover; publicity, Mrs. E. E. LaCroix, Edmunds; nominating, Mrs. H. L. Chadwick, Spokane.

Inland Empire

"Theories of Osteopathic Physiology" was presented by H. L. Davis, Walla Walla, at the meeting held at Sandpoint, Idaho, on October 11.

A meeting was scheduled to be held November 8 at Spokane.



by Many Thousands of Doctors . . . the DAILY LOG

One volume. Fits in your desk drawer, yet gives you complete business records of your practice.

Shows profits and expenses for each month, itemized. Shows how your collections are coming in.

Loose leaf. Extra sheets may be added—damaged sheets removed.

Flat opening. Accessory ring binder available—makes writing easier.

Time saving. Developed by a practical physician — requires no bookkeeping training.

Dated—date and day of week printed on each page. Holidays plainly marked to avoid scheduling appointments.

Up-to-date—printed new each year. Gives you the latest improvements.

Special service—friendly help given on any of your record-keeping problems.

Low Cost. Only $6.50 complete. Prompt delivery. Satisfaction guaranteed. Send for your '48 Daily Log now.

More than 9 out of 10 doctors who try the Daily Log reorder the following year—your assurance of satisfaction.

COLWELL PUBLISHING CO., 265 University Ave., Champaign, Ill.

SPECIAL AND SPECIALTY GROUPS

AMERICAN COLLEGE OF OSTEOPATHIC PEDIATRICIANS

Region I

Edwin H. Cressman, Philadelphia, spoke on "Skin Diseases in Children" at the meeting at Philadelphia October 26.

AMERICAN COLLEGE OF OSTEOPATHIC SURGEONS

The officers are: President, Edward T. Abbott, Los Angeles; president-elect, Frank A. Dilatush, Dayton, Ohio; vice president, J. Gordon Hatfield, Los Angeles; secretary-treasurer, Orel F. Martin, Coral Gables, Fla.

James M. Eaton, Philadelphia, Lucius B. Faires, Los Angeles, and J. Clark Hovis, Detroit, are new members of the Board of Governors.

AMERICAN OSTEOPATHIC HOSPITAL ASSOCIATION

The officers are: President, Mr. Edward C. Barron, Detroit; vice president, Michael Blackstone, Allentown, Pa.; secretary-treasurer, Ralph Lindberg, Detroit.

OREGON DIVISION OF APPLIED OSTEOPATHY

The officers are: President, E. L. Burnham, Oregon City; vice president, L. Mossman; secretary-treasurer, K. M. Beaumont, both of Portland.

OSTEOPATHIC ROENTGEN-RAY SOCIETY OF OHIO

The officers are: President, John Keckler, Canton; vice president, Dwight A. Stiles, Dayton; secretary-treasurer, Frank A. Pick, Cleveland.

PUGET SOUND ACADEMY OF APPLIED OSTEOPATHY

The program announced in advance for the meeting scheduled to be held at Seattle November 19 was to include the following: Cranial session discussion led by W. A. Newland, Seattle; "Low-back Problems with X-Ray Studies," K. D. Kohler, Everett; "Problem Case in General Practice," R. S. Koch, Olympia; "Review of Osteopathic Lesions and Their Effects," L. L. Herr, Seattle.

SOUTHEASTERN PROCTOLOGICAL CLINIC

Matt Henderson, Atlanta, Ga., Frank Stanton, Boston, and Harold Coe, St. Louis, presented the surgical cases at the annual meeting held at Atlanta, Ga., October 2, 3.

State and National Boards

ALASKA

Anyone desiring to take basic science examinations should address the secretary of the Basic Science Board of Examiners, C. Earl Albracht, M.D., Juneau.

COLORADO

Examinations in January. Address C. Robert Starks, D.O., president, State Board of Medical Examiners, 1459 Ogden St., Denver 3.

DELAWARE

Examinations in January. Address Joseph McDaniel, M.D., secretary, State Board of Medical Examiners, 229 S. State St., Dover.

HAWAII

Examinations in January. Address Mabel A. Runyan, D.O., secretary, Board of Osteopathic Examiners, 2333 C Kalakaua Ave., Honolulu 30.

ILLINOIS

Examinations January 6-8 in Chicago. Address the osteopathic examiner, Oliver C. Foreman, D.O., 58 E. Washington St., Chicago 2.

KANSAS

Examinations February 5-7, Jayhawk Hotel, Topeka. Applications must be filed 30 days prior to examinations. Address Forrest H. Kendall, D.O., secretary, Board of Osteopathic Examination and Registration, Holton.

LOUISIANA

The officers of the State Board of Osteopathy are: President, W. L. Wharton, Lake Charles; secretary, W. L. Stewart, Alexandria; treasurer, J. R. Kidwell, Baton Rouge. All were re-elected.

MICHIGAN

Basic Science examinations January 9, 10, at Ann Arbor and Detroit. Address Eloise LeBeau, secretary, State Board of Examiners in the Basic Sciences, 101 N. Walnut St., Lansing.

MONTANA

Examinations in December. Applications accepted to December 1. Address Asa Willard, D.O., secretary, Board of Osteopathic Physicians, Wilma Bldg., Missoula.

OREGON

Examinations January 21-24 at "Study Hall" Library, University of Oregon Medical School, Portland. Applications must be filed by January 7. Applications for reciprocity to be considered at the Board Meeting January 23, 24 must be filed by January 9. Address Lorienne

M. Conlee, executive secretary, Board of Medical Examiners, 608 Failing Bldg., Portland.

RHODE ISLAND

Basic science examinations February 11. Applications must be filed 2 weeks prior to examinations. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

WEST VIRGINIA

Examinations February 18, 19 at Hotel Daniel Boone, Charleston. Applications must be filed 10 days prior to examinations. Address W. H. Carr, D.O., secretary, Board of Osteopathy, 405 Coal and Coke Bldg., Bluefield.

RE-REGISTRATION OF OSTEOPATHIC LICENSES

During December — District of Columbia, $2.00. Address George C. Ruhland, M.D., secretary, Commission of Licensure, Room 6150, East Municipal Bldg., 300 C St., N. W., Washington.

January—Alberta. No reregistration. Pay $10.00 a year membership in College of Physicians and Surgeons, Alberta.

During January — Connecticut, $2.00. Address Robert Nicholl, D.O., secretary, State Board of Osteopathic Examination and Registration, 5 Field Pt. Rd., Greenwich.

During January — Minnesota, $2.00. Address George F. Miller, D.O., secretary, State Board of Osteopathic Examiners, 601 Dayton Ave., St. Paul 2.

January 1 — Arizona, not more than $12.00. Address C. E. Towne, D.O., secretary, State Board of Osteopathic Examiners, 916 Valley Bank Bldg., Tucson.

January 1—California, $10.00 for residents and non-residents. Address Glen D. Cayler, D.O., secretary, Board of Osteopathic Examiners, 301 Forum Bldg., Sacramento.

January 1 — Florida, $5.00. Address Richard S. Berry, D.O., secretary, State Board of Osteopathic Medical Examiners, 617-18 Times Bldg., St. Petersburg 5.

January 1—Maine, $2.00. Address Albert E. Chittenden, D.O., secretary, Board of Osteopathic Examination and Registration, 50 Goff St., Auburn.

January 1—Manitoba, $5.00. Address W. Kurth, D.O., secretary, Board of Osteopathic Physicians, 810 Somerset Bldg., Winnipeg.

January 1—New York, $2.00. Address Mr. Horace L. Field, Chief, Bureau of Qualifying Certificates and Professional Examinations, Albany.

January 1—Ontario, $10.00. Address Mrs. Mary E. Richardson, secretary, Board of Regents; Drugless Practitioners Act, 57 Bloor St., W., Toronto.

January 1—Oregon, $10.00. Address Miss Lorienne Conlee, secretary, Oregon State Board of Medical Examiners, 608 Failing Bldg., Portland.

January 1—Saskatchewan, $30.00. Address Doris May Tanner, D.O., secretary, Board of Osteopathic Physicians, 40 S. Sterling Trust Bldg., Regina.

January 1—Texas, $2.00. Address T. J. Crowe, M.D., secretary, State Board of Medical Examiners, 918 Texas Bank Bldg., Dallas.

January 1—Utah, $3.00. Address Mrs. Rena B. Loomis, assistant director, Department of Registration, 324 State Capitol, Salt Lake City.

January 31—British Columbia, amount of fee set at Annual Meeting of Council of College of Physicians and Surgeons of B. C. (1946, $28.00). Address A. J. MacLachlan, M.D., registrar, Council College of Physicians and Surgeons of British Columbia, 925 W. Georgia St., Vancouver.

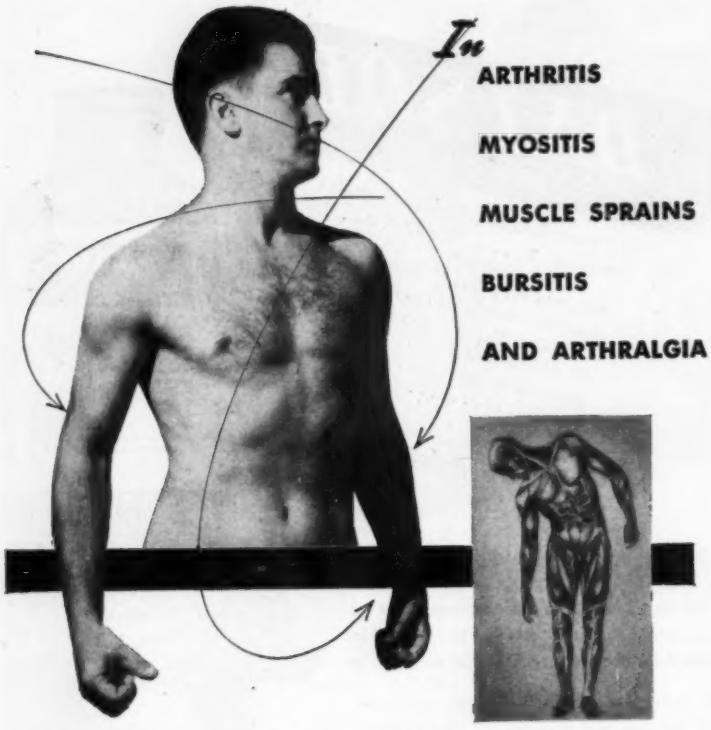
EXAMINATIONS BY NATIONAL BOARD

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examination on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary, and the completed application blank, together with a passport photograph and check for the part or parts to be taken, must be in the Secretary's office by the November 15, or April 15, preceding examination. Part III of the examination will be given in specified locations at the discretion of the Board and for the convenience of the applicant.

Examinations in Part I consist of anatomy, physiology, pathology, chemistry, and bacteriology. Part II consists of examination in mental diseases, surgery, obstetrics and gynecology, pediatrics, public health, osteopathic theory and practice. Part III is an oral examination.

Address John E. Rogers, D.O., Secretary, 16 Mount Vernon Street, Oshkosh, Wisconsin.

DALSOL
(U. S. VITAMIN)
Each DALSOL Capsule contains:
Vitamin D (as CALCIFEROL) 50,000 U.S.P. Units
Vitamin A 5,000 U.S.P. Units
Ascorbic Acid (C) 75 mg.
Thiamine (B1) 3 mg.
Riboflavin (B2) 3 mg.
Pyridoxine (B6) 0.33 mg.
Niacin 15 mg.
Niacinamide 15 mg.
Calcium Pantothenate 3 mg.
Alpha Tocopherol (E) 7.5 mg.
Combining intensive dosage of Vitamin D (Calciferol) with high potency multivitamin therapy, DALSOL presents an important adjunct to the optimal nutrition so essential to the arthritic's welfare. DALSOL can help to
1. meet higher-than-normal vitamin needs,
2. provide the therapeutic effects which may reside in the vitamins,
3. reduce deficiency vulnerability of affected joints,
4. counter gastro-intestinal dysfunction, fatigue, weight loss, nervousness, anemia, if and to the extent that such symptoms are due to avitaminoses.
Multi-Nutritional Support
as Adjunct Therapy
in ARTHRITIS



OBJECTIVE IMPROVEMENT may be achieved through the beneficial influences exerted on the pathologic processes by the active hyperemia induced by a Baume Bengué massage.

SUBJECTIVE IMPROVEMENT is evidenced by a comforting sensation of warmth and relief of pain which may result from the combined local and systemic effects of Baume Bengué.

Percutaneous absorption of methyl salicylate not only reinforces the topical effects of Baume Bengué but can enhance other systemic measures used to combat the underlying disease processes. The proof of the systemic effects of such preparations was established by the fundamental work of Moncorps, Kionka, Hanzlik, Brown and Scott.

Baume Bengué
ANALGESIQUE

Baume Bengué provides 19.7% *methyl salicylate,* 14.4% *menthol in a specially prepared lanolin base.*

THOS. LEEMING & CO., INC., 155 E. 44TH ST. N.Y. 17

CHANGE OF ADDRESS AND NEW LOCATIONS

Abar, J. Weston, PCO '47; 4624 Spruce St., Philadelphia 39, Pa.

Adler, Kenneth, from 3032 Van Brunt Blvd., to 4202 E. 27th St., Kansas City 1, Mo.

Adler, Philip, PCO '47; Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.

Agnew, Harry R., from Ellington, Mo., to 437 Clark St., Canton, Mo.

Anderson, Major C., from Des Moines, Iowa, to 205 E. Main St., Marshalltown, Iowa

Andreen, W. C., from Wyandotte, Mich., to 2816 N. Tenth St., Phoenix, Ariz.

Axelrod, Jerome L., PCO '47; 537 Shoemaker Road, Elkins Park, Pa.

Bankes, Willard E., from Detroit, Mich., to 10593 W. Jefferson St., River Rouge 18, Mich.

Beghtol, Gene H., from Storm Lake, Iowa, to Corn Belt State Bank Bldg., Correctionville, Iowa

Belden, Larry M., DMS '47; New Mexico Osteopathic Hospital, 1020 West Central Ave., Albuquerque, N. Mex.

Benson, John R., from 1444 Prospect St., to 3407 S. Cedar St., Lansing 10, Mich.

Berger, Arnold H., from 5320 Wynnefield Ave., to 724 Porter St., Philadelphia 48, Pa.

Biddle, J. Russell, from 10 Oasis Court, to 2 Oasis Court, Indio, Calif.

Biddlestone, Lyle A., PCO '47; Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio

Blumberg, Robert B., PCO '47; 4212 N. Darien St., Philadelphia 40, Pa.

Bortle, Donald T., PCO '47; Osteopathic Hospital of Maine, Inc., 335 Brighton Ave., Portland, Maine

Boyd, Ethel, from Main St., to 509½ Grand Ave., Spencer, Iowa

Brimfield, Charles H., from Upper Darby, Pa., to 436 W. Market St., York, Pa.

Brown, William B., PCO '47; Bangor Osteopathic Hospital, 292 State St., Bangor, Maine

Browning, Zack, C., Lt., (j. g.) MCR USNR; from Pensacola, Fla., to First Marine Prov. Brigade, Co. B, Med. Battalion (Guam). FPO, c/o Postmaster, San Francisco, Calif. (In Service)

Brownstein, Morton, PCO '47; 5706 Jefferson St., Philadelphia 31, Pa.

Brune, Robert J., from Corpus Christi, to Alice Clinic & Hospital, 201 E. Second St., Alice, Texas

Burt, Jacques C., from Overton, Texas, to 7 Devon Road, Noroton Heights, Conn.

Calabrese, Arthur B., KC '47; 942 Brown Ave., Erie, Pa.

Cameron, James O., from Ontario, Calif., to 6221 Delmar Blvd., St. Louis 5, Mo.

Capista, John F., from 1915 S. Hicks St., to 1808 S. 18th St., Philadelphia 45, Pa.

Carpenter, Richard C., from Grand Rapids, Mich., to Comstock Park, Mich.

Carr, John Otis, from Larned, Kans., to Box 15, Marceline, Mo.

Caruso, Samuel L., PCO '47; 1417 Jackson St., Philadelphia 45, Pa.

Castle, C. L., from 3717 Main St., to 4075 Seventh St., Riverside, Calif.

Cionci, John L., PCO '47; 930 S. Eighth St., Philadelphia 47, Pa.

Colby, Archie R., DMS '47; 2216 Delaware Blvd., Saginaw, Mich.

Coster, Aristotle T., from R. F. D. 2, to 31 Brunswick Ave., Gardiner, Maine

Crane, Betty Lou, from Box 1882 to 140 E. Jefferson St., Boise, Idaho

Cutler, Franklyn F., PCO '47; Maywood Hospital, 4400 E. Slauson Ave., Maywood, Calif.

Daniels, Frederick W., from 304-10 Five-Story Bldg., to 302 Friedlander Bldg., Fitzgerald, Ga.

Davis, Stanley E., from 219¾ W. Maple St., to 600 W. Maple St., Columbus, Kans.

Deiter, Oswald B., from Stanhope, N. J., to 45 N. Broad St., Ridgewood, N. J.

De Masi, Andrew D., PCO '47; 1840 S. Tenth St., Philadelphia 48, Pa.

Detjen, R. L., from Moots Hospital, to Pryor Clinic, 6 N. Rowe, Pryor, Okla.

DeYonker, John F., Jr., from Warren, Mich., to 505 N. High St., Kirksville, Mo.

Dierdorff, Verne H., from River Rouge, Mich., to 12820 Ward Ave., Wyandotte, Mich.

Di Nolfo, Anthony, from Los Angeles, Calif., to Still-Hildreth Osteopathic Sanatorium, Sand Springs Lake Road, R. R. 9, Tulsa 15, Okla.

Disinger, W. R., from Cleveland Heights, Ohio, to 2622 N. Moreland Blvd., Shaker Heights 18, Ohio

Dodge, Paul J., from Providence, R. I., to 44 Langdon St., Plymouth, N. H.

Dossick, Jules J., PCO '47; 1029 South St., Philadelphia 47, Pa.

Drews, Robert O., from Brewer, Maine, to 43 Lafayette, S. E., Grand Rapids 3, Mich.

Dugas, Jean E., from Arvin, Calif., to General Delivery, Mendota, Calif.

Duncan, John W., KCOS '47; Shelbina, Mo.

Duncan, Morris D., from Festus, Mo., to 2202a E. 31st St., Kansas City 3, Mo.

Durkee, Joseph B., from Forney, Texas, to 4507 Gaston Ave., Dallas 4, Texas

Edgerton, John C., from 720-22 Sixth St., to Wilden Osteopathic Hospital, E. 14th & Capitol Aves., Des Moines 16, Iowa

Eggleston, Bernice C., from Pilot Grove, Mo., to Woodland Hospital & Clinic, 400 W. Fourth St., Sedalia, Mo.

Eggleston, Clark R., from Pilot Grove, Mo., to Woodland Hospital & Clinic, 400 W. Fourth St., Sedalia, Mo.

Elliot, Chester F., from Philadelphia, Pa., to 270 Crown St., Brooklyn 25, N. Y. (Change of name from Epstein)

Elliott, Kenneth A., DMS '47; 1010 Eighth St., Des Moines, Iowa

Ellison, Edward C., PCO '47; Muskegon Osteopathic Hospital, Third & Webster Sts., Muskegon, Mich.

Elston, Harry E., Jr., from Columbus, Ohio, to Mahoning Valley Green Cross Hospital, Warren, Ohio

Enderby, Wayne C., from Iowa City, Iowa, to 1133 S. Jackson St., Green Bay, Wis.

Ennis, Antoinette S., from Philadelphia, Pa., to Box 119, Novinger, Mo.

Erickson, Adolph A., from Monterey Park, Calif., to 219 E. Valley Blvd., San Gabriel, Calif.

Erlingheuser, Ralph F., from San Bernardino, Calif., to Cleveland Osteopathic Hospital, 3146 Euclid Ave., Cleveland 15, Ohio

Farer, Jerome, PCO '47; 1601 E. 31st St., Brooklyn, N. Y.

Farnham, G. M., from Manchester, Mich., to 417 E. Chicago Ave., Bronson, Mich.

Farnum, C. Edward, from Adelaide, Australia, to 13 Bull St., Newport, R. I.

Feldman, Albert A., PCO '47; Grand Rapids Osteopathic Hospital, 1225 Lake Drive, S. E., Grand Rapids 6, Mich.

Feltoon, Ervin, PCO '47; Bashline-Rossman Hospital, Cor. Pine & Center Sts., Grove City, Pa.

Fisher, Raymond D., from 208 N. Daggett, to 3132 Forrest Ave., Handley, Texas

Flannery, William A., KC '47; Los Angeles County Osteopathic Hospital, 1100 N. Mission Road, Los Angeles 33, Calif.

Gaddis, C. J., from Beverly Hills, Calif., to 254 26th St., Brentwood, Santa Monica, Calif.

Gaddis, Helen, from Beverly Hills, Calif., to 254 26th St., Brentwood, Santa Monica, Calif.

Gates, Robert W., from 417 N. E. First St., to 501 Sweet Bldg., Fort Lauderdale, Fla.

Gilbert, Romaine I., PCO '47; Massachusetts Osteopathic Hospital, 43 Evergreen St., Jamaica Plain, Boston 30, Mass.

Giletto, Joseph E., PCO '47; 838 Yeadon Ave., Lansdowne, Pa.

Giliberto, James J., PCO '47; 1421 S. Broad St., Philadelphia 47, Pa.

Gillmore, Walter H., from Centreville, Mich., to Fishers Lake, Three Rivers, Mich.

Glaser, L. Howard, COPS '46; 1158 Pioneer Blvd., Artesia, Calif.

Gleason, Vinson W., from Larned, Kans., to 28 N. E. 60th Terrace, Miami 38, Fla.

Goldstein, Martin J., from Brooklyn, N. Y., to Kirksville College of Osteopathy & Surgery, Kirksville, Mo.

Gordon, Bernard P., from Collingdale, Pa., to 316 E. Ninth St., Chester, Pa.

Grimes, William F., from 416 Jackson St., to 22½ McDaniel St., Dayton 5, Ohio

Groves, Harold D., from Kirksville, Mo., to 1218 Selling Bldg., Portland 5, Ore.

Hale, Emma B., from 612 Montgomery Bldg., to 296 Spring St., Spartanburg, S. C.

Hamburger, Eugene J., PCO '47; Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.

Hamburger, Rena G., PCO '47; Mount Clemens General Hospital, McComb at North, Mount Clemens, Mich.

Hanson, Erling, A., from Fargo, N. Dak., to 721 Second Ave., E., Williston, N. Dak.

Harder, J. W., from Los Angeles, Calif., to 641 Beaumont Ave., Beaumont, Texas

Harris, Arnold S., PCO '47; 2251 Baird Blvd., Camden, N. J.

Hawkins, A. L., from Box 93, to 210 N. Concord St., Minneapolis, Kans.

Heichelbech, Norbert A., DMS '47; Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio

Hemingway, Thomas, COPS '47; 1734½ Sichel St., Los Angeles 31, Calif.

Heist, Mary L., from 144 King St., to 36 Courtland Ave., W., Kitchener, Ont, Canada

Herzen, Alexander V., COPS '47; 845 S. Crenshaw Blvd., Los Angeles 5, Calif.

Hickey, George O., from Doniphan, Mo., to Bailey-James Bldg., Mountain Grove, Mo.

Hickman, Kyrmel L., from Pasadena, Calif., to 555 Vassar St., Fresno 4, Calif.

Hockett, Wayne A., from 803 Bales Court, to 4605 Independence Ave., Kansas City 1, Mo.

Hofkin, Harold H., PCO '47; 4400 E. Slauson Ave., Maywood, Calif.

Hoover, George O., from Erie, Pa., to Cleveland Osteopathic Hospital, 3146 Euclid Ave., Cleveland 15, Ohio

Hubbell, Preston R., from 1024 S. E. Second Court, to 1120 E. Broward Blvd., Fort Lauderdale, Fla.

Huls, Wilber T., DMS '47; 602 E. 15th St., Davenport, Iowa

Janiger, Oscar, PCO '47; Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6, Mo.

Johnson, Eugene M., from Traverse City, Mich., to Northport, Mich.

Johnson, Royal H., Jr., from Mount Clemens, Mich., to 18077 Homer Ave., Roseville, Mich.

Kalman, Albert S., from 5435 Woodward Ave., to 2467 Highland Ave., Detroit 6, Mich.

Kamlay, Thaddeus P., from 2925 E. Division St., to 2925 E. Davison St., Detroit 12, Mich.

Kanoff, Saul, PCO '47; 2401 S. Opal St., Philadelphia 45, Pa.

Klesner, Mary L., from Grand Rapids, Mich., to 1205 Third St., Muskegon, Mich.

Koenigsberg, Arthur, PCO '47; 205 39th St., Union City, N. J.

Krems, Abraham D., KCOS '47; 4400 Slauson Ave., Maywood, Calif.

Lane, George M., from 416 Marlboro St., to 311 Commonwealth Ave., Boston 15, Mass.

Lavet, Norman O., from North Hollywood, Calif., to 1449 Gardner St., Los Angeles 46, Calif.

Leonard, J. Paul, from 2871 W. Grand Blvd., to 2673 W. Grand Blvd., Detroit 8, Mich.

Lepoff, Irvin, PCO '47; 6801 Lynford St., Philadelphia 24, Pa.

Levine, Henry, from Robertson, Mo., to 2949 Tyson Ave., Mayfair, Philadelphia 24, Pa.

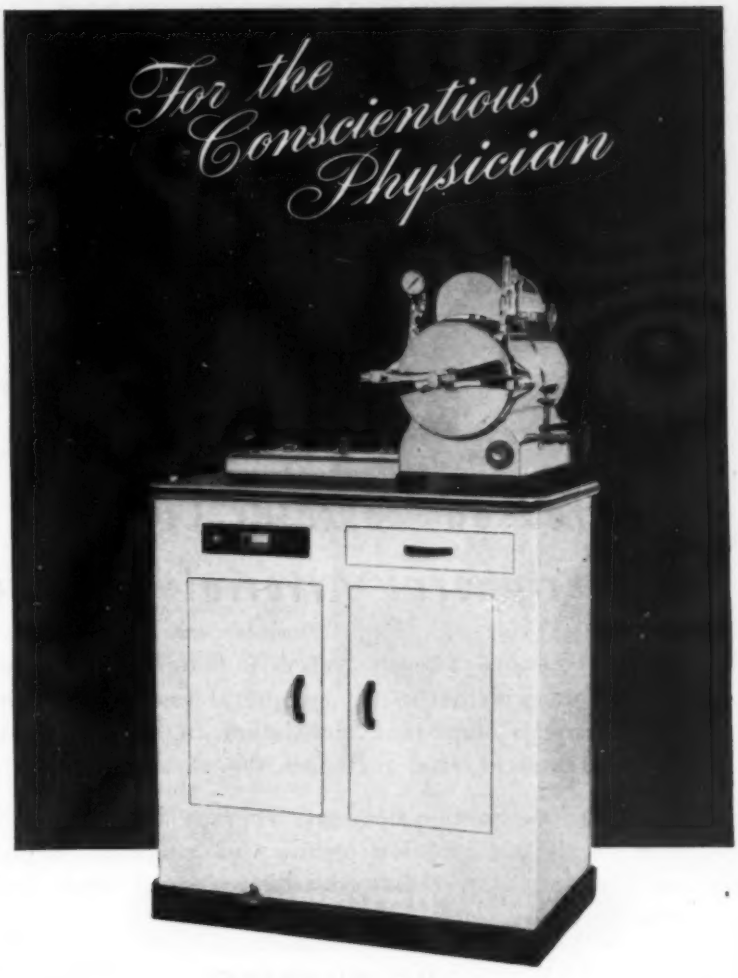
Levine, Irwin Rhine, PCO '47; 142 S. Oak St., Mount Carmel, Pa.

Lieberman, Isadore, PCO '47; 6538 N. 18th St., Philadelphia 26, Pa.

Lowe, Amanda J., from 1655 N. Cherokee Ave., to 6532 Sunset Blvd., Hollywood, Los Angeles 28, Calif.

Lyon, Thomas M., from Los Angeles, Calif., to 1717 H St., Sacramento 14, Calif.

Lyons, John G., from Matthews Bldg., to 319 E. Main St., Owosso, Mich.



PELTON MODEL 61-HP AUTOCLAVE
AND CABINET STERILIZER

THE PELTON & CRANE CO., DETROIT 2, MICHIGAN

Professional Equipment Since 1900

Mack, Donald L., from Trenton, Mich., to 9110 Birwood, Detroit 4, Mich.

Madoff, Norman J., from Redding, Calif., to 426½ N. Orange Grove Ave., Los Angeles 36, Calif.

Marsella, Augustus F., KC '47; 3022 McGee St., Kansas City 8, Mo.

Marsico, Dominic E., PCO '47; 2441 S. 12th St., Philadelphia 48, Pa.

Mascioli, Alphonso A., PCO '47; 6327 Sumner St., Philadelphia 39, Pa.

Masters, David M., PCO '47; Massachusetts Osteopathic Hospital, 43 Evergreen St., Jamaica Plain, Boston 30, Mass.

McFall, Mary J., from New Orleans, La., to 407 W. Washington St., Paris, Ill., (Released from Service.)

Miller, George R., from Glendale, Calif., to Barstow Hospital, Barstow, Calif.

Moody, Kenneth H., from Kirksville, Mo., to Box 237, Chicago 90, Ill.

Mook, Wendell E., PCO '47; 241 S. 45th St., Philadelphia 4, Pa.

Moore, H. F., from Camden, Maine, to Box 171, St. Simon Island, Ga.

Mount, Roy M., from 201-02 First Natl. Bank Bldg., to 105 E. Ensey St., Tuscola, Ill.

Mullen, H. C., from 212 Carlton Bldg., to 220 E. Brookside St., Colorado Springs, Colo.

Musselman, Dolores, KC '47; 419 Maple Blvd., Kansas City 1, Mo.

Nelson, Clifford W., from 614 Capital Ave., N. W., to 614 Capital Ave., N. E., Battle Creek, Mich.

Newell, Edward T., from Kirksville, Mo., to 56 Pleasant St., Rutland, Vt.

Nims, Dwight P., from 15415 Mack Ave., to 3439 Cass Ave., Detroit 1, Mich.

Novak, Augustine R., PCO '47; Osteopathic Hospital of Philadelphia, 48th & Spruce Sts., Philadelphia 39, Pa.

Odor, Walter L., from 240-41 Werby Bldg., to 418 Lee Bldg., Kansas City 6, Mo.

Opdyke, Lesly H., from Box 175, to Box 116, La Crosse, Kans.

Osattin, Morris R., PCO '47; 2556 N. Seventh St., Philadelphia 33, Pa.

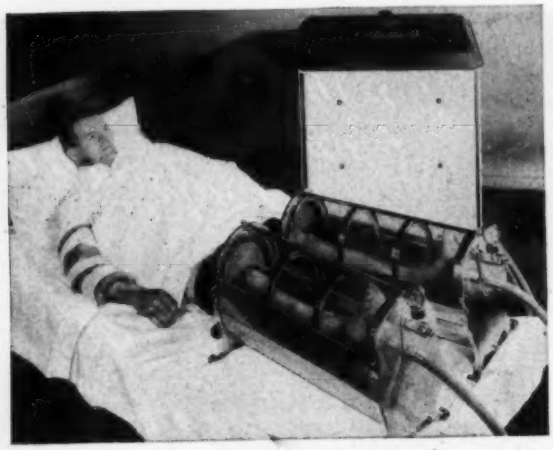
Pearson, Lambert H., from FPO, New York, N. Y., to Masonic Bldg., Clark, Mo. (Released from Service.)

Perdue, Raymond Parker, from 1526 N. Saginaw St., to 708 Garland St., Flint 4, Mich.

Peterson, Joseph W., from 405-10 Lafayette Bldg., to Hileman Bldg., 619 Mulberry St., Waterloo, Iowa

Philben, Chester A., KCOS '47; Box 71, Wymore, Nebr.

Pilger, Galen V., KC '47; 611 Brooklyn Ave., Kansas City 1, Mo.



Increased Vascular Capacity In Peripheral Arterial Disease

Suction-Pressure Therapy offers a better outlook for the patient with occlusive peripheral vascular disease. It encourages improved circulation in the extremity under treatment, and increases the vascular bed.

The Burdick Suction-Pressure Therapy Unit is adaptable to all the common technics of alternate suction and pressure, and has the capacity to treat two extremities at once.

THE BURDICK
SUCTION-PRESSURE THERAPY UNIT

Write The Burdick Corporation, Milton, Wisconsin, for literature and the name of the Burdick dealer in your area.

Burdick

THE BURDICK CORPORATION

Raffa, Dominic, from 424 Stovall Professional Bldg., to 311 N. Morgan St., Tampa 2, Fla.

Raffa, Margaret H., from 424 Stovall Professional Bldg., to 311 N. Morgan St., Tampa 2, Fla.

Ratcliffe, Theodore L., PCO '47; 18 School St., Glastonbury, Conn.

Rawles, Evelyn L., CCO '47; Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio

Redman, M. L., from Philadelphia, Pa., to Pioneer Life Bldg., Fargo, N. Dak. (Released from Service)

Reincke, C. H., from Kansas City, Mo., to 626 W. Division St., Springfield, Mo.

Riemann, M. L., from Battle Creek, Mich., to Kirksville College of Osteopathy & Surgery, Kirksville, Mo.

Rosenthal, Gerald S., from Muskegon, Mich., to Ansted, W. Va.

Routsong, James F., KC '47; 1215 E. Eighth St., Tulsa 5, Okla.

Rouse, H. Seaman, from Roswell, N. Mex., to 648 Clermont St., Denver 7, Colo.

Rubin, Abraham J., from Trenton, Mich., to 2796 W. Fifth St., Brooklyn 24, N. Y.

Salkind, Alan, PCO '47; Chicago Osteopathic Hospital, 5250 S. Ellis Ave., Chicago 15, Ill.

Salmon, Edith, from 464 43rd Ave., to 166 Geary St., San Francisco 8, Calif.

Schmitz, Orville L., KCOS '47; Willard General Hospital, 310 E. Main St., Manchester, Iowa

Schulz, Gustave L., Jr., from APO 315, San Francisco, Calif., to 1500 Princess Ave., Camden, N. J. (Released from Service)

Schwab, Walford A., from Namakan Lake, Ont., Canada, to 58 E. Washington St., Chicago 2, Ill.

Seaman, Kent L., from Fort Wayne, Ind., to 1051 LeClaire Place, Los Angeles 6, Calif.

Seruto, Philip, from Los Angeles, Calif., to 330 S. Rosemead Blvd., Pasadena 8, Calif.

Shannon, Richard C., from Springfield, Mo., to Box 415, Ava, Mo.

Shapiro, Jacob Behr, PCO '47; 2025 E. Moyamensing Ave., Philadelphia 48, Pa.

Sherman, Benjamin W., PCO '47; 1478 E. 46th St., Brooklyn 3, N. Y.

Shuman, David, from 34 E. Washington Lane, to 1818 Pine St., Philadelphia 3, Pa.

Smith, Aubrey James, from 15 New England Ave., to 1 Euclid Ave., Summit, N. J.

Smith, C. Frederick, from Farlow Bldg., to K. of P. Bldg., Kinsley, Kans.

Smoot, J. A., from 2644 E. 11th St., to 2542 E. 11th St., Tulsa 4, Okla.

Snyder, William C., from Boston, Mass., to Walter Bldg., Fulton, Ill.

Spring, Arthur W., from 22552 Gratiot Ave., to 22151 Gratiot Ave., East Detroit, Mich.

Stanley, Frank L., PCO '47; 2114 Franklin Ave., Morton, Pa.

Stanley, Leon C., from Arbuckle, Calif., to Salter Bldg., Williams, Calif.

Steinsnyder, Hartley R., PCO '47; 4814 Larchwood Ave., Philadelphia 43, Pa.

Stephens, Frank N., from 105½ S. 18th St., to First Natl. Bank Bldg., Parsons, Kans.

Stevenson, H. A., from 139-a E. Second St., to 8335 E. Second St., Downey, Calif.

Stram, Harold M., from Oroville, Calif., to 466 E. Olive St., Burbank, Calif.

Strick, Harold J., from 1100 N. Mission Road, to 1449 Gardner St., Los Angeles 46, Calif.

Swoger, Robert J., from Massillon, Ohio, to Canal Fulton, Ohio

Tavener, W. H., from Detroit, Mich., to 708 Garland St., Flint 4, Mich.

Taylor, Donald N., from 1214 E. Pierce St., to 711 E. McDowell Road, Phoenix, Ariz.

Trahanovsky, Nicholas A., KC '47; 120 Oak St., Conemaugh, Pa.

Tillmann, Audrey, from Tarzana, Calif., to 3071 El Cajon Blvd., San Diego 4, Calif.

Tomajan, Karnig, from 512 Beacon St., to 514 Beacon St., Boston 15, Mass.

Tomajan, K. George, from 512 Beacon St., to 514 Beacon St., Boston 15, Mass.

Tompson, G. W., from Kansas City, Mo., to 10334 Palestine St., Houston 15, Texas

Twersky, Arthur B., KC '47; 222 Main St., Festus, Mo.

Van Hook, Carlton R., from 7247 Charles St., to 4304 N. Seventh St., Philadelphia 40, Pa.

Venuto, Joseph, PCO '47; 1826 S. Carlisle St., Philadelphia 45, Pa.

Vos, John F., from Farmington, Mich., to 27513 Grand River Ave., Detroit 19, Mich.

Wagner, Alois, CCO '47; 1936 W. Mitchell St., Milwaukee 4, Wis.

Waltzer, Martin, PCO '47; 4050 Market St., Philadelphia 4, Pa.

Warner, Francis E., from 425 N. Walnut St., to 400 E. Seventh St., Bloomington, Ind.

Weiner, Oscar R., PCO '47; 1139 N. 41st St., Philadelphia 4, Pa.

Weisbrod, Joshua L., PCO '47; 356 Stuyvesant Ave., Irvington, N. J.

Weiss, Melvin V., CCO '47; Harbor Hospital, Cropsey Ave., & 23rd Ave., Brooklyn, N. Y.

Wetzel, Leland E., KC '47; 2001 Independence Ave., Kansas City 1, Mo.

Weygandt, Mildred G., from 3524 Oakridge Drive, to Joplin General Hospital, 521 W. Fourth St., Joplin, Mo. (Change of name from Landin)

White, Edward D., from 1746 Hamilton St., to 1103 Walnut St., Allentown, Pa.

White, J. Russell, from New Castle, Pa., to 2146 Queen St., E., Toronto 8, Ont., Canada

Whittemore, Joe D., KCOS '47; 1209 Brady St., Davenport, Iowa

Wiley, Edgel W., from 250 W. Duke St., to 145 E. Chestnut St., Lancaster, Pa.

Wilkinson, W. C., from Clovis, N. Mex., to Box 307, Jupiter, Fla.

Williams, Warren W., PCO '47; 411 Presquile St., Philipsburg, Pa.

Wilson, Frank M., from 922 S. Atlantic Blvd., to 5016 Whittier Blvd., Los Angeles 22, Calif.

Woody, Lloyd C., from Rockdale, Texas, to Gaston Avenue Clinic, 4845 Gaston Ave., Dallas 4, Texas

Wooliscroft, Kenneth S., from Rockdale, Texas, to Gaston Avenue Clinic, 4845 Gaston Ave., Dallas 4, Texas

Wyatt, Joseph H., from Los Angeles, Calif., to 2410 David Stott Bldg., Detroit 26, Mich.

Zacour, Alexander, PCO '47; 507 Euclid Ave., Canonsburg, Pa.

Zeigler, B. W., from York, Pa., to 10 Kennedy Apts., Kirksville, Mo.

THE PSYCHIC TRAUMA OF BECOMING PART OF A GROUP*

Lt. Com'd'r. Horace G. Miller
MC (USNR)

Anyone who comes into an unfamiliar group of people with strange rules, customs, and personal relationships will tend to feel insecure. This feeling is experienced in many life situations. When men enter the armed forces, the reaction to it can be observed with striking clarity. A certain number of inductees suffer psychic trauma and some suffer irreversible psychic changes on account of their inability to accept the feeling of insecurity incident to becoming part of a group. In time of war there are, of course, psychic casualties incident to traumatizing experiences in actual combat; the following discussion, however, deals only with the insecurity inherent in the unavoidable situation of entering a new world.

It is easy to accept our mental casualties as an unavoidable consequence of hurriedly creating a fighting organization from civilian personnel. It is easy to appease our apprehension over the situation by declaring it an inevitable part of making the world safe. This is the sort of rationalization that fond parents indulge in when they assure themselves that their carefully reared children really know how to behave, that they are remarkably nice most of the time, and that it is only with the added insecurity of company that they act unlike their real selves. Actually, however, times of added stress merely throw our basic inadequacies into sharp and accurate relief.

The process of transfer from a familiar to an unfamiliar situation occurs many times in an ordinary human life. It occurs when one gets married; it occurs when one leaves school for a job; it occurs when one leaves home for school; it occurs when one leaves the security of the crib and starts to toddle about in a world of giants. It occurs with its greatest impact at birth itself. The transfer of an organism from a more secure to a less secure environment is a basic life situation. The feeling of insecurity is a fundamental reality of life. Growth and change and the meeting of unfamiliar danger are as real and unavoidable as eating and breathing. Therefore it cannot be said that mental breakdowns come from insecurity, but rather that they come from the way this insecurity is met.

Under the impact of this unpleasant feeling of insecurity, any living organism tends to make more or less integrated movements toward safety. Mercifully, no one can remember just how he felt when he was a baby; there is sufficient evidence, however, to indicate that a baby's feelings are profound, and that he suffers an utter loneliness and fear that adults are protected against. Methods for mitigating this painful feeling are used again when he enters later groups; they come to be depended upon as long as they work, or can be made to seem to work. When a person becomes dependent upon a method, he hates to relinquish it, because to do so means that he must run the risk of encountering the original feeling in all its intensity.

Modern psychiatry places great emphasis on the importance of the sense of personal worth. Much depends upon the basis for this sense of worth. The first group a child enters is, of course, his family, and the attitudes and evaluations that succeed here tend to stay by the child for the rest of his life. However, the child does not appear in the first group by himself. He is ushered into it by his mother. Her attitudes toward him and toward this group are real to him, because it is she who first shields him, as an utterly helpless child, against the hazards of existence. If the mother has been reared as the center of her world, and if she feels that a sense of personal adequacy depends upon this relationship, she will pass this feeling on to the child, and will bend her efforts toward making him aware of this kind of love. Or, if the mother feels that a sense of personal adequacy or goodness depends upon the acceptance of a certain pattern of behavior, she will pass this pattern on, and the child's acceptance of these standards will be bolstered by the fear of losing his mother's love if he is bad. A child thus conditioned seeks to grow toward the security of his mother's approval, and tends to reject as a part of himself all feelings or tendencies running contrary to the approved pattern.

*Delivered in Philadelphia, 18 May 1944, at the Centennial Meeting of the American Psychiatric Association, by Lt. Comdr. Horace G. Miller, M.D., USNR., U.S. Naval Hospital, Portsmouth, Virginia.

50,000
HYFRECATORS
IN USE
THROUGHOUT THE
WORLD

Chosen by thousands of general practitioners, E. E. N. T. specialists, dermatologists, proctologists, gynecologists and urologists, the Birtcher Hyfrecator offers a compact, high frequency electro desiccation-coagulation unit which simplifies office procedure.

Quick, easy operation with no fore or after treatment required . . . in 33 proven technics, including the removal of warts, moles, superfluous hair and other unwanted growths, with excellent cosmetic results. Outstanding for cervical erosions.

Built with traditional Birtcher high quality and stamina, handy for instant use, moderately priced, the Hyfrecator has been acclaimed one of the doctor's most satisfactory units of equipment.

THE BIRTCHER CORPORATION

Learn the advantages of Hyfrecation. Mail the coupon for Free Booklet, "Symposium on Electrodesiccation." Fully illustrated.

To: The BIRTCHER Corporation, Dept. C-12-7
5087 Huntington Dr., Los Angeles 32, Calif.
Please send me free booklet, "Symposium on Electrodesiccation and Bi-Active Coagulation."
Name_____
Street_____
City_____ State_____

The Spinalator
REGISTERED U.S. PATENT OFFICE

The Spinalator combines more worthwhile values than have ever been offered before in any one modality.

★ It saves your time
★ It conserves your energy
★ It increases your practice
★ It does a better job
★ It lifts your morale
★ It enhances the appearance of your office

The Spinalator is more than a treatment table, more than a mechanical aid, more than an ordinary modality. It is the attainment of a long sought objective, the result of many minds working to a common end, viz.: an instrument of beauty and durability that will perform 80% of the work in a general manipulative treatment and do it better than if it had been done by hand.

Don't put off investigating this modern modality. Write today for complete information.

THE SPINALATOR COMPANY

P. O. Box 826 **Asheville, N. C.**

Such a child grows with instilled patterns and feelings of personal value more or less firmly attached as a part of himself, and with many of his natural desires under control. This pattern assumes a quality of "rightness," unassailable by logic or reality. The idea of his sense of personal adequacy assumes paramount importance to a child reared in this fashion, and the world of external reality is a threat that must be appeased. The father, next to the mother the most significant person in this world of external reality, is seen only as something to be ignored, accepted with repressed resentment, or appeased by strict adherence to the "right" pattern. This process goes on until the impact of the real world is strong enough to break through the protective wall and demand recognition. For many people, this break-through never occurs; they are allowed to carry their protective pattern as long as they live. But for many young men of today, the challenge of authority and responsibility in the armed services is strong enough to obtain primacy. Psychic trauma thus occurs in many cases, and those who cannot make the readjustment become our psychiatric casualties. For this trauma, we cannot blame either the war or military ruthlessness. The error lies primarily in our belief that children need to be taught a pattern and given feelings of personal adequacy.

Children can be soundly reared without making pattern fundamental in their lives, provided they come to realize that not their personal adequacy, but the family organization, is the basis for their security and for the security of all the other individuals in this first group. They can come to have a feeling of adequacy not in their own right, not by resenting their inferiority to their father in all spheres except cuteness and dependency, but by accepting themselves as part of a group that gains much of its strength from this powerful creature, the father.

In spite of the importance that verbalization has come to have in our personal lives and our social framework, careful scientific work in the last few decades has emphasized the importance of the non-verbal conditioning of emotional processes. It has been found that animals can be conditioned to react to situations so that it is very difficult to change their pattern of behavior later to one that is more profitable to them. It has been found also that children are early conditioned to place their feeling of security in whatever part of their environment offers the greatest satisfaction of their desires.

It would seem that children can become dependent upon their feeling of adequacy, or upon different persons in their environment, or upon different human qualities, or upon word formulations themselves. These things are bad not in themselves but because through them dependency replaces real respect for the parents, and ideas become laid down in the cortex as patterns constricting the growth of the personality. But where the relationship of the parents is based on genuine mutual respect and on the recognition of something larger of which each is a part, instead of on a sentimentalized mutually dependent and possessive love, the child can be conditioned to accept this feeling provided no other adjustment is made possible for him. It is probably more painful to have to accept this nebulous reality than something more definite and concrete. However, children who have once accepted their relative inadequacy, and who have at the same time accepted the responsibility for their own sphere of action, will probably never face anything later in life that holds so great a threat to their opinion of themselves. On the other hand, any child who has been allowed to rely upon any other attitude or quality will always carry apprehension regarding his inadequacy and the feeling that some human problems simply will not bear looking into.

Throughout the course of human history, there have grown up many formulae by which a person may be helped to accept his essential personal inadequacy while preserving the idea of himself that he has built up. All of these formulae have in common the acceptance of a larger principle of life that one must stand in awe of even though it cannot be understood. In the course of time, however, the part of a formula that satisfies the desire for a feeling

of personal adequacy usually comes to be emphasized, while the part that leads toward the sense of honest humility and obligation tends to be glossed over.

Our scientific knowledge has progressed to the point where we can accept some of the realities that these formulae point toward. A new conception of human personality is now possible, one that can help us to free ourselves from domination by hydra-headed immature self-formulations, one that can help us to accept the struggles and sufferings and dangers that will necessarily accompany our reconditioning on a sounder basis for living.

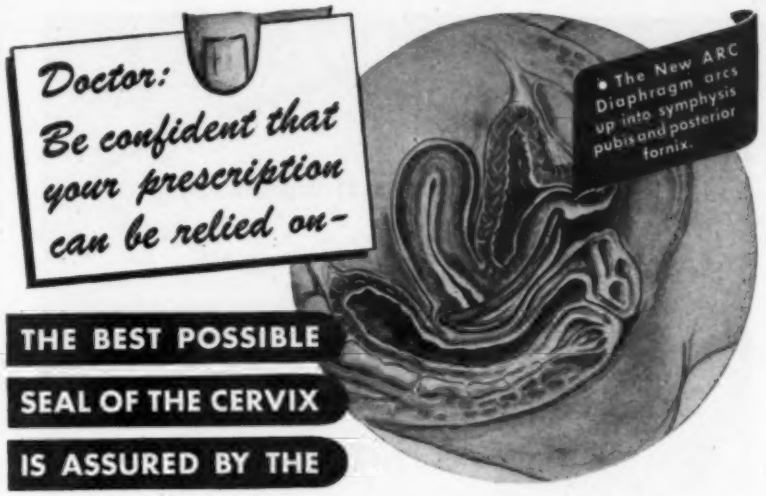
To begin with, there is the true self. This is our basic animal nature, the animal needs that have grown out of the organization of protoplasm into human form. These needs are often poorly understood because of cultural distortion. That the true self has been called by the Latin word for "it" indicates the length we have gone to in our worship of mentation and the roundabout process we have had to go through even to recognize the existence of our animal nature.

Next comes non-verbal conditioning. This comes about as a reaction of the striving organism to its environment. It can be positive or negative toward other people and toward the principle of social organization. This conditioning does not come to us in the form of words; it is the same conditioning that other domesticated animals accept. It is not inherent in the organism; it is a relationship, and results from interaction. By the very nature of a child's early experience with the family group, the attitude toward the father image is an extremely important part of this unverbalized feeling.

Then we have the pattern of verbalized concepts, which people usually accept as part of their personality. Part of this pattern becomes the developing personality's idea of itself, and part of it becomes its idea of what it thinks it ought to be. This aspect of the cultural impact on personality has been described carefully, but always with the idea that it represents normality. It seems highly probable, however, that the internalization of this pattern of verbalized concepts (certainly in the extreme form in which we frequently see it) occurs only when conditioning toward the world of people is so inadequate that the self is left undelimited, untamed, undomesticated. If a person's conditioning has been actively negative, he often accepts a mere pattern as his real self and rejects the still resentful true self in a curative effort to salvage something from an already damaged piece of goods.

In the case of the soundly conditioned person, the cultural pattern is external, something that the person seeks to learn and to use as a tool for the better satisfaction of his living needs. In the unsoundly conditioned person, however, the pattern becomes something forced upon him to which he clings and with which he often identifies himself in order to control his animal nature. Thus the paradox of psychiatry and sociology can be understood. Democracy and freedom are possible and valuable only insofar as people have been soundly conditioned to accept their obligation to something bigger than themselves. When people value most their unrestricted freedom, they actually and necessarily adopt a strict and dominating control, either internalized in their cerebral cortex or externalized in the shape of ruthless masters.

Insecurity always exists when one enters a new group. Some degree of psychic trauma appears unavoidable, because the newcomer must lose some of his more immature pattern in order to accept his new relationship without too much conflict. Whatever one has become dependent upon will hamper this new adjustment. The willingness to accept, very early in life, the feeling of respect for something bigger than one can ever hope to understand seems to be the only attitude that will not constrict future growth and the acceptance of the world of reality.—*Diseases of the Nervous System*, Sept. 1945.


Doctor:
Be confident that your prescription can be relied on-
• The New ARC Diaphragm arcs up into symphysis pubis and posterior fornix.

THE BEST POSSIBLE SEAL OF THE CERVIX IS ASSURED BY THE

New ARC Diaphragm

• With its specially-designed rim, the new ARC Diaphragm arcs upward and outward when flexed, pressing gently but firmly against the upper vaginal wall, effecting the most complete mechanical seal of the cervix ever achieved by any conception-control device. Fits both normal and abnormal anatomies. Available in 55 to 95 mm. sizes. Intended for use with spermicidal creme or jelly.

Send for pictorial and descriptive literature giving complete information on this superior intravaginal device. Prescribe, with confidence, the New ARC Diaphragm.

A New Diaphragm with Self-Sealing Rim
ARC arches upwards at ends when flexed at sides; ordinary diaphragm merely elongates in one plane.

Write Nearest Distributor for Literature

LARRE' LABORATORIES, INC.
1010 Acoma St., Denver 1, Colo.
DISTRIBUTOR WEST OF MISSISSIPPI

DIAPHRAGM & CHEMICAL CO.
235 E. Ontario St., Chicago 11, Ill.
DISTRIBUTOR EAST OF MISSISSIPPI

Send literature on the New ARC Diaphragm to Dr. .....
Street ..... City ..... State .....

FILL IT IN • TEAR IT OUT • DROP IT IN THE MAIL TODAY!

all
are important in
amino acid
therapy
ease of administration
No special recipes, no complicated instructions for preparation. Simply add 2 tbsp. to liquid and stir. So easy to prepare in so many different ways. Tasteful blending with fruit and vegetable juices, soup, milk, gravies and sauces. DPS Formula 201 makes an especially delightful bouillon-like beverage by simply adding hot water. So easy to prepare—so pleasing to taste.
pleasant taste
A distinctive palate-pleasing protein hydrolysate—DPS Formula 201—rich in all the amino acids, supplies large amounts of the B-complex vitamins and has extra dl-methionine for added protective action.
strepogenin content
Strepogenin, a peptide-like factor, is recognized for its ability to increase the therapeutic effectiveness of protein hydrolysates and amino acid mixtures. "...the addition of the factor strepogenin to hydrolyzed proteins and to amino acid mixtures may well be expected to improve their therapeutic value in man as it has been found to do in the experimental animal." (J. A. M. A. 131:826)
When amino acid supplementation is indicated—for maximum therapeutic effectiveness...
Specify
Dartell
formula
201
amino acid supplement
DARTELL LABORATORIES • 1226 South Flower Street, Los Angeles 15, California

AGING OF TISSUES: THE NECESSITY FOR RESEARCH

Wm. deB. MacNider
Kenan Research Professor of Pharmacology Medical School, The University of North Carolina, Chapel Hill

The designation of a biological and certainly of a sociological process as aging is perhaps unfortunate. In many minds it at once indicates a concern not in the change and readjustments in tissues and in human relationships chronologically regulated by time but in an irreversible state, senility, that finds its end reaction in the naturalness of death. Such a finality of biological and social adventures, while deserving both interest and care, of their nature fail to lend themselves to investigation with the hope of acquiring information that may be applied in a usable and constructive fashion. To prolong senility and the unhappiness usually associated with it would, in truth, be a vivisection. The statement which is to follow is therefore not concerned with senility as an age entity but with acquiring information about those processes which develop in all animal and plant tissue as a result of such tissue as organism being subjected to a life through time which may ultimately lead to senility and, if such be possible, to a termination in senile, physiological death.

The influence of the age of tissues in modifying, if not in determining, types of disease processes in the animal organism has been recognized for centuries, and yet these observations in general have certainly been treated in a superficial, if not an incidental, fashion. The phenomena of tissue resistance as well as susceptibility, in which the factor of age either influences or in a large measure determines these states as the individual as organism advances through different segments of the life span, have not been assigned the importance which they would appear to deserve. This does not imply that the advent of certain specific diseases and tissue modifications of a degenerative order has not been associated in the minds of investigators with such age segments. It does mean that observations of such an order have usually been made in a casual fashion without attempting to disclose the basic nature of chemical cell modifications, the products of aging which may be the factors determining the advent of degenerative alterations in tissues and which regulate, in a measure, their susceptibility or resistance to certain outside agencies, or the cause for specific disease states.

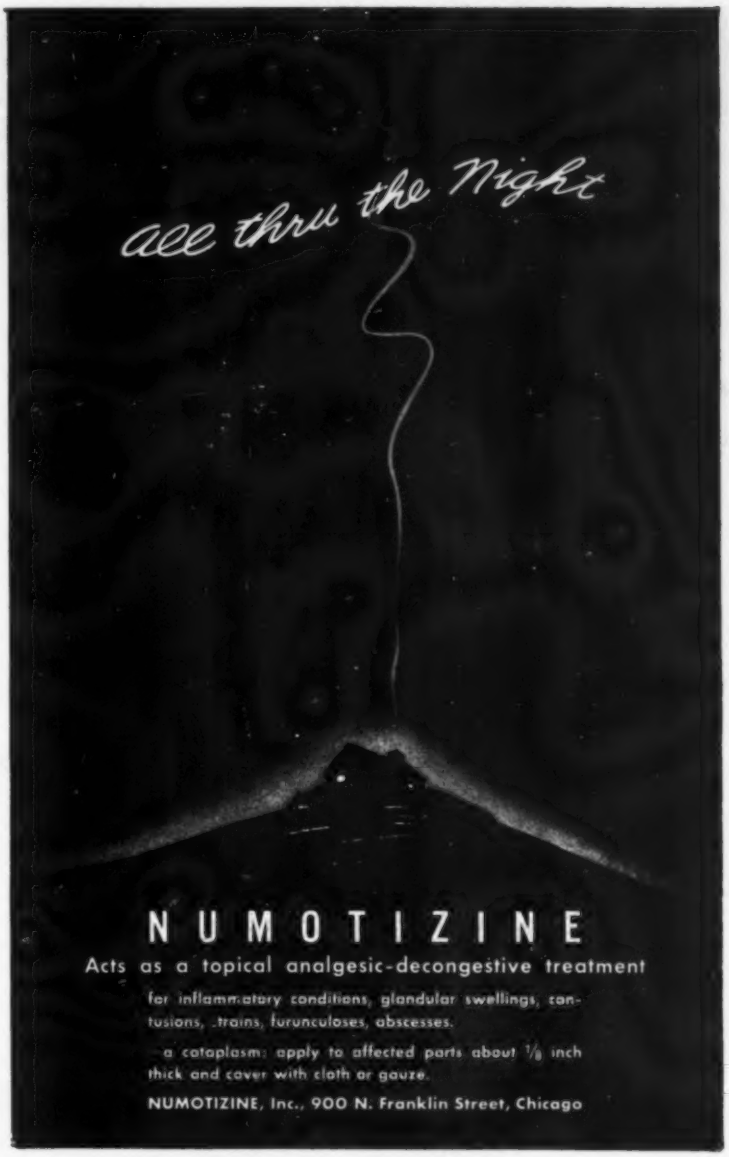
The influence of the age of tissues in terms of their susceptibility is shown very early in the life span by our recognition of a group of disease processes as specific pathological entities designated as the diseases of infancy and childhood. Such states may develop in adulthood or at even more advanced age periods, but they are predominatingly more frequent in younger tissues and in such tissues of specific cell types. Certain of these diseases have been shown to be due to viruses which prefer an intracellular order of existence. At such an age period intracellular material would appear to afford a properly chemically constituted culture medium for these living agencies of disease, and as the aging process develops it may well be that this living medium so changes in its composition that it becomes less appropriate for the life and multiplication of these bodies. Age as a modification in intracellular chemistry with or without a change in morphology (*3*) may

BET-U-LOL
HUXLEY PHARMACEUTICALS
521 FIFTH AVENUE, NEW YORK, N. Y.
The Ethical Topical Anodyne that Controls . . . PAIN *in muscle, nerve and joint inflammations*
CONTAINS CHLORAL HYDRATE • MENTHOL METHYL SALICYLATE

have imparted to such cells and the tissues which they constitute an element of resistance to invasions by disease-producing entities. Why do we speak of anterior poliomyelitis as infantile paralysis unless it is due to the likelihood that in the infant and young child motor anterior horn cells of the spinal cord are more susceptible to the invasion and proliferation of the virus of this disease than is the case for these cells at more advanced years or in senility? It is possible that as these cells live into more advanced age segments they may become protected against the virus by the individual forming specific antibodies. These bodies, however, cannot be demonstrated in such advanced age segments of maturity or in senility in a sufficient percentage of incidence as to explain the decrease in the likelihood of infantile paralysis appearing in such periods of the life span. In reasoning of a reverse order, in the influenza epidemic of 1917 infants and young children were relatively notably spared the development of this virus disease, while adults who chronologically had been afforded the time factor in which to acquire, by mild infections, an immunity of an extracellular chemical order were especially susceptible to it; and in this age segment of adulthood the mortality percentage rose to its height, again declining in the senescent and senile age groups.

The same order of inquiry applies to malignant disease (*4*). If such tissue developments have as their exciting cause the action of specific viruses, why is it that such bodies find in the cells, especially of certain organs as they pass their peak of maturity and into senescence, a favorable environment for their existence and express such an adaptation in a wildness of cell growth and an associated intoxication of the organism as a whole, designated as malignant disease? The occurrence of such states in infancy and early childhood and in senility is less frequent than in the mature and senescent individual. If such tissue growths come about from a lack of chemical tissue restraint or the advent of a tissue stimulus other than a living invading organism, it would appear equally important that knowledge of a highly complex, difficult-to-obtain, and exact order should be searched for in tissues at various age segments in order to explain modifications in tissue susceptibility or resistance to the development of such states of malignancy. Such states favorable to virus growth, to a lack of tissue restraint, or to tissue stimulation cannot be ascertained until we possess biochemical and biophysical information of cell life at various periods in the life of the organism as a whole, in order to contrast chemically through these data periods in the life span of tissues characterized by relative resistance as susceptibility to changes of a malignant order.

At the present time diseases of the heart and blood vessels, especially the latter, take the highest toll of life. Such terminal events, in all likelihood com-


see thru the Night
NUMOTIZINE
Acts as a topical analgesic-decongestive treatment
for inflammatory conditions, glandular swellings, contusions, strains, furunculoses, abscesses.
a cataplasm: apply to affected parts about 1/8 inch thick and cover with cloth or gauze.
NUMOTIZINE, Inc., 900 N. Franklin Street, Chicago

FOR THE DIABETIC
SUGAR-FREE SWEETS

Flavors: Cinnamon, Licorice, Orange, Lemon, Lime, Peppermint, Root, Rum and Butter, and Raspberry. Send for Literature.

CELLU Low Carbohydrate Dietary Foods
CHICAGO DIETETIC SUPPLY HOUSE Inc.
1750 West Van Buren Street Chicago 12, Illinois

Lolly Pops for Children

efficient convenient local anesthesia!

MONOCAINE HYDROCHLORIDE AND METAL CAP ANESTUBES . . .

Monocaine Hydrochloride (Isobutylamino-ethyl-p-aminobenzoate hydrochloride) in Metal Cap Anestubes provides an efficient, convenient method of administering a local anesthetic.

The Anestube (anesthetic cartridge) is inserted into the frame and becomes an "unbreakable barrel" of the syringe. Within a few seconds, you are ready to inject potent, sterile Monocaine solution from the Anestube into the tissues! A special feature enables the user to aspirate at any time during injection.

By gently flaming the metal cap, an unbroken chain of sterility is maintained.

Metal Cap Anestubes with Monocaine are available in 1 cc., 2¼ cc. and 5 cc. sizes. Use the coupon for detailed information.

Novocol Chemical Mfg. Co., Inc. Brooklyn, N. Y.

Please send details on Monocaine and Metal Cap Anestubes.

Dr. .....

Address .....

( ) Send samples of Monocaine Ampules.

Monocaine is the registered trade mark of the Novocol Chemical Mfg. Co., Inc.

NOVOCOL CHEMICAL MFG. CO., INC.
2911-23 Atlantic Avenue, Brooklyn 7, N. Y.
Toronto • London • Buenos Aires • Rio de Janeiro

mencing years before the finality of the blood vessel accident or episode, certainly show themselves in a much higher percentage in adult and late adult life. The occurrence of coronary artery disease with occlusion in youth has recently been emphasized (*1, 2*). These heart and blood vessels changes are usually seen as tissue changes in the process of repair, as indicated by the laying down of fibrous tissue in the place of a protective endothelium and functional muscle tissue. The familial incidence and, of more significance, the age incidence in the development of such disease cannot be questioned. Basic research of a chemical order in an attempt to learn the nature of those chemical changes, the modifications in blood vessel tissue metabolism, and tissue metabolism in general, in which such vessels that are associated with aging share, has certainly lagged in its applied interest. The older microscopic type of investigation, perhaps for want of an adequate chemical technique, continues to dominate investigations concerning the causes of heart and blood vessel disease. This most important problem will be solved only with the discovery of the biochemical constitution of tissues as they advance from an age period of relative nonsusceptibility to vascular disease into that middle-age segment in which their susceptibility is marked and at which time changes often terminate life. As a result of the rapidly increasing life span of the individual there will be a mounting number of human beings falling in that age segment in which vascular disease reaches such a state of development as to express itself either as incapacity or death.

Through certain illustrations used above, an attempt has been made to divest the minds of many individuals of an interpretation of the study of aging processes as a dominant interest in senility. Senility and the care of the senile deserve consideration both as biological end reactions and as an expression of the fineness of human feeling. The significance of an understanding of aging resides in the assumption that through such information the shifting, adapting, and nonadapting changes of a chemical order of life are to express themselves in determining those age areas in which tissue degenerations make their appearance, in which tissues exert their influence in the formation of new and abnormal tissue growths, or the advent of certain specific states of disease falling in the group of viruses which require an intracellular environment highly specific in its chemical constitution for their propagation.—*Science*, Nov. 1, 1946.

REFERENCES

1. Dock, W. *J. Amer. Med. Ass.*, 1946, 131, 875.

2. French, A. J., and Dock, W. *J. Amer. Med. Ass.*, 1944, 124, 1233.

3. MacNider, Wm. deB. *J. exp. Med.*, 1929, 49, 411; *J. Pharm. exp. Therap.*, 1936, 56, 383; *Ann. int. Med.*, 1938, 12, 147.

4. Rous, Peyton. *Amer. Scientist*, 1946, 34, 329.

WHITE Teckla GOWNS FOR OFFICE PATIENTS

WE HAVE KRINKLE CREPE

No. 2G Krinkle Crepe, for home laundering—do not iron.

12 for $24.00 6 for $12.75

No. 3G Plain Cloth—for public laundries

12 for $18.00 6 for $9.25

Backs open 12", 24" or full length.

Actual bust measure of garments [Size 1 is 42" Size 2 is 52" Size 3 is 60"] All 40" long

Extra ties $1.00 for 50 yards.

Postage paid on CASH orders.

TECKLA GARMENT CO.

Box 863 Worcester 1, Mass.

INSPECTION TOUR OF VA HOSPITALS

By Dr. Paul R. Hawley
Chief Medical Director, Veterans' Administration

During the course of my recent visits in the field, I have been impressed with the constructive thought being given by many of our personnel to the basic problems in the VA medical program. These problems will be seen in the true perspective only if we, who are charged with their solution, pause from time to time to take stock of our accomplishments in order to plan ahead with clearer judgment towards our goal of achieving a medical service second to none. It is the purpose of this letter, therefore, to restate our objectives and briefly evaluate our progress in meeting them.

While much still remains to be done, we may well be gratified with our achievements during this past year. Quantitative measurements cannot begin to tell the story, for our greatest accomplishment has been the marked progress towards our goal of providing all eligible beneficiaries with the best possible medical service in accordance with the highest current professional standards. The human suffering that has been avoided by more rapid and more effective therapy, the achievements of the mental hygiene program in staving off mental illness, the medical rehabilitation program in rebuilding shattered lives, the changing emphasis in neuropsychiatric hospitals from custodial care to genuine treatment, and many other equally significant advances—none of these can be calculated in cold statistical terms.

However, even when judged by quantitative standards alone, our achievements during the past fiscal year have been impressive. A total of 386,614 veterans were admitted to our hospitals during the fiscal year, 1947, compared to 271,299 for the previous year. VA patients hospitalized during the year at any one time averaged 98,600, compared to 78,900 during the previous year, an increase of 25 per cent. Our hospital plant had 108,225 authorized beds and 101,273 available beds as of June 30, 1947, compared to 91,675 authorized and 87,369 available beds as of June 30, 1946. A total of 2,744,602 individuals were given medical examinations and 564,171 individuals were given dental examinations during the fiscal year, 1947, a marked increase over the comparable figures of 1,036,634 individuals examined medically and 85,537 individuals given dental examinations during the preceding year. A similar growth was manifested in medical and dental outpatient treatments.

I attribute the substantial progress we have made to two factors, among others, which have been of paramount importance—enough money to do the job, and a staff of sufficient size and quality to do it well. While I need hardly elaborate on the crucial importance of adequate funds in the medical program, it may be well to compare our present situation with conditions facing the medical program in the recent past. Until a short time ago, our relatively inadequate medical budget and the insufficient number of personnel made it physically impossible

TWINS

. . . alike

yet

different

IODEX *(plain)*
for
MINOR BURNS, WOUNDS AND ABRASIONS, ENLARGED GLANDS AND MANY SKIN DISORDERS

IODEX c *Methyl Sal*
for
STRAINS, SPRAINS, MUSCLE AND RHEUMATIC PAINS. RELIEVES ITCHING IN SKIN DISEASES

MENLEY & JAMES, LTD., NEW YORK

Determine ALBUMIN and SUGAR in URINE
On Only One 5-Drop Portion of Urine—at Your Desk or at Patient's Bedside
METHOD APPROVED BY LEADING LIFE INSURANCE COMPANIES
Ask for Leaflet AS-JO
CARGILLE SCIENTIFIC, Inc., 118 Liberty St., New York 6, N. Y.

LEND A "Helping Hand" TO MANIPULATIVE THERAPY IN Arthritis

Recognizing that gastro-intestinal dysfunction often parallels the severity of joint manifestations in arthritis, many physicians consider systemic detoxification of the arthritic a most important therapeutic procedure. • For this purpose, OCCY-CRYSTINE—a clinically proved detoxicant-eliminant—is widely employed as an adjuvant to manipulative measures. • OCCY-CRYSTINE assures maximum elimination of autogenous toxins by

"SPA" TREATMENT. Following the initial laxative dosage, many physicians prescribe Occy-Crystine "mineral water" (½ to 2 tsp. Occy-Crystine to 1 qt. water) as an aid in maintaining smooth gastrointestinal function. *Write for free trial supply and clinical report.*
OCCY-CRYSTINE LABORATORY • SALISBURY, CONN.

1 RELIEVING colonic stasis;
2 IMPROVING liver and gall bladder function;
3 STIMULATING renal clearance of toxins;
4 RELEASING colloidal sulphur so frequently deficient in arthritics.

FORMULA: Occy-Crystine is a hypertonic solution of pH 8.4, with sodium thiosulfate and magnesium sulfate as active ingredients to which the sulfates of potassium and calcium are added in small amounts, contributing to the maintenance of solubility.

OCCY-CRYSTINE
THE SULFUR-BEARING SALINE DETOXICANT-ELIMINANT

for even our best trained and most competent doctors to provide the kind of medical care they were capable of giving and eager to give to the veteran patient. Professional stimulation through close association with the finest medical schools, the challenge of research, and opportunities for professional growth and advancement were only dreams in those difficult days. But despite the overcrowded hospitals, staggering patient loads, and inadequate equipment and personnel, many of our doctors struggled to the limit of their endurance to provide the best medical care possible under the circumstances. That they were able to accomplish as much as they did is a tribute to their sense of obligation to their calling and their concern for their patients' welfare.

In contrast to the conditions I have described, funds are now available to assure us not only that medical services will not be seriously curtailed, but—more important—that the quality of medical care will not be jeopardized. But this assurance is ours only if these funds are wisely used so that every dollar spent contributes directly to the attainment of our major goals.

While the progress we have made would have been quite impossible without the necessary funds, it would have been equally impossible without the necessary personnel. Thanks to the interest of the medical profession as a whole in the VA medical program, we have been able to secure the services, on a full-time, part-time, or consultant basis, of the country's most gifted professional men. Our entire staff—both those who have seen long service with the VA and those who joined us more recently—has responded magnificently to the professional stimulation and guidance these leaders have provided.

In any medical program, it is the individual doctor, dentist, nurse, and attendant who is finally responsible for the quality of medical care. Without their unstinting support and personal competence, the most ambitious and well-planned medical program is inevitably doomed to failure. Inspired by unparalleled opportunities for practicing the finest medicine, both our older and our newer men, sharing their knowledge, skill, and enthusiasm, have contributed equally to the creation of a well-balanced medical staff which is bringing to the veteran's bedside the very best in medical theory and practice.

On behalf of our veteran patients, I wish to thank you all—those who have served us long and well, and those who are new to the VA, for the wisdom and enthusiasm you have brought to the medical program and for your vital and aggressive role in building a medical service second to none.

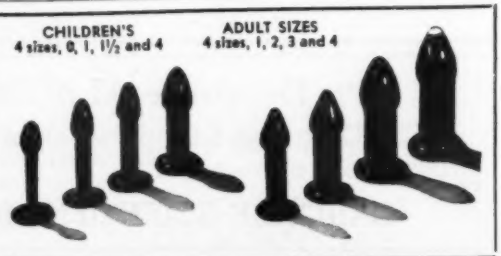
YOUNG'S RECTAL DILATORS

In CONSTIPATION

Used by the profession for more than 40 years, Young's Rectal Dilators provide anal dilation and help to restore normal tone where tight or spastic rectal sphincter muscles have induced a constipated condition. Sold only on Rx. Set of 4 in graduated sizes, children's $4.50, adults' $4.75. Available at Ethical Drug Stores or from Your Surgical House. Write today for complete literature.

F. E. YOUNG & CO. 420 E. 75th St., Chicago 19, Illinois

CHILDREN'S 4 sizes, 0, 1, 1½ and 4
ADULT SIZES 4 sizes, 1, 2, 3 and 4



ARBITRARY RETIREMENT OF AGED WORKERS LEADS TO NATION OF "USELESS SENILES"

Waterbury, Conn., Oct. 23.—"Compulsory retirement by 1980 of all workers 45 years of age or older" was foreseen if the present archaic system in this country is maintained of "pensioning off faithful retainers" solely on the basis of calendar age.

The prediction was made October 23, by Theodore G. Klumpp, M.D., president, Winthrop-Stearns Inc., in an address at the annual meeting of the New Haven Medical Society.

Dr. Klumpp stated that the weight of our population is shifting toward the older group and that we cannot persist in dumping workers in the "old age boneyard" when they reach a fixed age. He warned of a severe economic dislocation ahead, citing statistics of age groups in this country to prove that by 1980 there would be a potential labor surplus of 30 million workers if the elderly were scrapped summarily.

"Today, 33.3 per cent of our population is over 45 years of age," Dr. Klumpp said. "It has been conservatively estimated that we will have not less than 150 million people by 1980. This means that by that time there will be 81 million 45 years and over.

"In the light of the all-time employment record of almost 60 million gainfully employed which has recently been attained, this means that in less than 33 years we shall have more individuals over 45 than the total number employed at the present time."

Dr. Klumpp stated that he was not advocating that the normal aspirations of youth for advancement in society be frustrated in favor of retaining aged employees. But, he said, to attempt to strike a balance by eliminating all workers over a certain age is an unfair penalty on age and experience.

"In a refined and delicate way it is a perpetuation of the jungle law of the fang and claw, where the leaders of the pack survive only until the younger beasts grow fierce enough to eliminate them. In modern civilization we are less violent, but the end result is approximately the same."

Charges that advanced age were synonymous with over-conservatism and stultification of progress were termed "illogical generalizations" by the speaker.

"Certainly Bernard Baruch, 77 years of age, Serge Koussevitsky, 73, Arturo Toscanini, 80, Herbert Hoover, 73, and Nicholas Murray Butler, 85, are no obstacles in the path of progress. And neither Senator Pepper, Henry Wallace, nor Tommy Manville have become more conservative as they have grown older," he said.

One of the most important steps in solving the problem of old age versus youth in the matter of jobs, Dr. Klumpp continued, is the successive reduction in working hours for all workers rather than reducing more and more older workers to a state of parasitism. He pre-

Q. DO YOU KNOW WHAT DERMATOLOGISTS DO *FIRST* IN TREATING ANY INFLAMMATORY CONDITION OF THE SKIN?

A. THEY USE A WET DRESSING...

... and thus are sure to do no harm *eliminating the danger of "overtreatment" dermatitis.*

The wet dressing of choice is DOMEBORO TABS . . . a fact substantiated by their widespread acceptance by dermatologists throughout the country and by the hundreds of millions of tablets which have been used with impressive success all over the world by the U.S. Army, Navy, Red Cross, Veteran's Administration, UNRRA and the U.S. Public Health Service.

DOMEBORO TABS can aid you, doctor, in reducing absenteeism by promoting *faster healing* because DOMEBORO solution remains in a state of constant ionization, thus rendering it capable of *correcting* variations in the pH values of the skin.

AVAILABLE IN THREE CONVENIENT FORMS
TABLETS
POWDER
OINTMENT

DOMEBORO
is the trademark for the patented, modernized form of basic
ALUMINUM ACETATE
BUROW'S SOLUTION
(1:20)

DOMEBORO TABS are listed on page 378 of the "Manual of Dermatology" issued under the auspices of the National Research Council as "BUROW'S SOLUTION—DOMEBORO TABS"

DOME CHEMICALS, INC.
250 EAST 43RD STREET • NEW YORK 17, N. Y.
Canadian Distributor: F. J. Whitlow & Co., Ltd., Malton, Ontario, Canada
Distributor for California, Arizona and Nevada
Obergfel Bros., 420 S. San Pedro St., Los Angeles

soothing
cleansing
dainty
VAGINAL CLEANSER
Mu-col

STOPPING LEUCORRHEAL DISCHARGE rapidly in most patients, MU-COL quickly relieves itching, smarting, disagreeable odors. Gentle, efficient MU-COL mildly stimulates and rids affected membranes of putrid mucus and debris . . . helps speed recovery. A clean, dainty, instantly soluble powder for all feminine hygiene purposes.

SAMPLES from
THE MU-COL COMPANY, Dept. AO-87, Buffalo 3, New York

Have you seen the

NEW 1948 TYCOS MERCURIAL

with time-saving hook-type cuff

EXCLUSIVES...

- *Personalized with your initials at time of sale.*
- *Die-cast aluminum case guaranteed not to break.*
- *Patented Easier-To-Use Hook-Cuff.*
- *Patented filter cap insures permanent accuracy.*

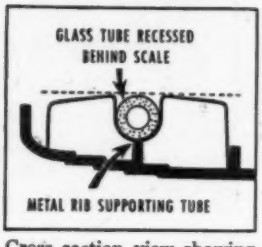
YOUR INITIALS . . .
Your surgical supply dealer will personalize your new Tycos Mercurial with gold-plated initials without charge at time of sale.

See it at your surgical supply dealers!

PLUS...

1. Glass tube recessed behind scale minimizes possible breakage.
2. One-piece, reinforced taupe scale with embossed numerals harmonizes with modern design case.
3. Large area filter cap on top of glass tube insures quick response and permanent accuracy.
4. Roomy case easily holds popular Hook-Cuff. Gun-metal finish will not fingermark.
5. Precision built steel reservoir insures accuracy if tube is replaced.
6. Individually standardized heavy-wall glass tube has graduations fired-in for permanent easy reading.
7. Non-skid inserts on bottom of case prevent sliding and scratching the doctor's desk.
8. Mercury overflow-trap and hinged top-bracket make it easy to remove glass tube *with instrument upright* without spilling mercury.
9. Complete instrument (except inflation system) guaranteed against breakage for 10 years.
10. Guaranteed to remain accurate indefinitely if properly used.

Price **$32.50** complete at your surgical supply dealer's. See this new Tycos Mercurial today! Taylor Instrument Companies, Rochester, N. Y., and Toronto, Ontario.



Cross section view showing how glass tube is protected against breakage.

Hook-Cuff is so easy to use. Just circle the arm once—Hook—and it's on.

TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

dicted a 30-hour work week in industry in a generation.

To secure the maximum potential contributions from our population, thus assuring a smoothly-run economic unit and a contented citizenry, Dr. Klumpp proposed the following recommendations be adopted by Federal, state, and city governments and heads of industry.

Compulsory retirement on a calendar age basis be abandoned since physiological age is not the same as chronological age; retirement, like hiring, should be selective and based on fitness to do a given job; compulsory retirement should be based on the recommendation of a retirement board composed of medical and psychiatric members as well as administrative officials; opportunities for down grading in position and salary should be offered the aging worker, just as the young apprentice works himself up in skill; industry, governmental and private institutions must make a greater effort to employ partially disabled persons; institutions for the aged and disabled must be changed from asylums to modern institutions where every convenience and scientific development is available for their physical, mental, and spiritual comfort.

Books Received

PROCEDURE IN EXAMINATION OF THE LUNGS. By Arthur F. Kraetzer, M.D., Associate attending physician, Lenox Hill Hospital; Physician to Out-Patients, New York Hospital; Instructor in Medicine (Derm.), Cornell University. Ed. 3, revised and with a preface by Jacob Segal, M.D., F.A.C.P., F.C.C.P., Medical Director, Los Angeles Sanatorium; Formerly Associate Attending Physician, Triboro Hospital. Cloth. Pp. 150, with illustrations. Price $3.50. The Oxford University Press, 114 Fifth Ave., New York, 1947.

DIAGNOSIS IN DAILY PRACTICE. By Benjamin V. White, M.D., Assistant Clinical Professor of Medicine, Yale University School of Medicine, Consultant in Gastroenterology, Veterans' Administration Hospital, Newington, Conn., Branch Section Chief in Gastroenterology (New England), U. S. Veterans' Administration Assistant Visiting Physician and Chief of Gastroenterologic Clinic, Hartford Hospital, Hartford, Conn., and Charles F. Geschickter, M.D., Professor of Pathology, Georgetown University Medical School, Consultant in Pathology, U. S. Naval Medical School, Bethesda, Md., Consultant in Pathology, Mt. Alto Veterans' Administration Hospital, Washington, D. C., Pathologist-in-chief, Gallinger Municipal Hospital, Washington, D. C. Cloth. Pp. 693, with illustrations. Price $15.00. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia, 1947.

GEORGE CRILE. An Autobiography. Edited, with sidelights, by Grace Crile. Volumes I and II. Cloth. Pp. 624, with illustrations, and boxed. Price $10.00. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia, 1947.

CORNELL CONFERENCES ON THERAPY. Edited by Harry Gold, M.D., Managing Editor. Volume II. Cloth. Pp. 354. Price $3.75. The Macmillan Co., 60 Fifth Ave., New York City, 1947.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS. By T. G. Heaton, M.B. (Tor.), Chest Clinician, Toronto Western Hospital; and Christie Street Hospital, Toronto. Ed. 2. Cloth. Pp. 292, with illustrations. Price $4.50. The Macmillan Co., 60 Fifth Ave., New York City, 1947.

FUNDAMENTALS OF IMMUNOLOGY. By William C. Boyd, Ph.D., Associate Professor of Biochemistry, Boston University, School of Medicine. Ed. 2. Cloth. Pp. 503, with illustrations. Price $6.00. Interscience Publishers, Inc., 215 Fourth Ave., New York City, 1947.

PHYSICAL MEDICINE IN GENERAL PRACTICE. By William Bierman, M.D., Attending Physical Therapist, Mount Sinai Hospital; Assistant Clinical Professor of Medicine, Columbia University. Ed. 2 revised and enlarged. Cloth. Pp. 686, with illustrations. Price $8.00. Paul B. Hoeber, Inc., 49 E. 33rd St., New York City, 1947.

CLASSIFIED ADS

RATES PER INSERTION. $2.00 for 20 words or less. Additional words 10 cents each. 25c for box number.

TERMS: Cash with order.

COPY: Must be received by 1st of preceding month.

ADDRESS all box numbers c/o THE JOURNAL, 139 N. Clark St., Chicago 2, Illinois.

FOR SALE: Air conditioned by 3 horsepower McCray machine; concealed hot water radiation; steel trussed, two-story frame building, 12 rooms; full basement, large dark room; CORNER LOT; 3 toilets; tiled floor; hot water tanks, 135 gallons; 1¼ inch copper water line; living quarters upstairs; 4 car garage, etc. Superb location in large Michigan city 2 blocks from post office, junction and 2 auto routes. Priced to sell with or without X-ray equipment. Write Box 1271, THE JOURNAL.

OPPORTUNITY FOR PROCTOLOGIST: Those interested in proctology should write Mrs. Ruth Bauer, 1000 Market Street, Canton, Ohio, to discuss with her the opportunities available for this type of practice in Canton.

FOR SALE: Late husband's office equipment, lease and prosperous general practice established 21 years. Two bedroom house adjoining available. Phone Ariz. 34981. Mrs. George Tome, 12115 Wilshire Blvd., Los Angeles, Calif.

WANTED: Sluder, either Molt-Storz Tonsillectomy or Ballenger. Will pay good price. Dr. H. M. Connell, 1010 Chambers Bldg., Kansas City 6, Mo.

FOR SALE: 16-bed hospital fully equipped. Cash or terms. Write to Northside Hospital, Sullivan, Missouri.

FOR SALE: X-Ray steel filing cabinet. 3-drawer—14x17, $70.00 complete. X-Ray accessories — films — new bucky $302.00. Physio-therapy new—used—Chrome furniture. Dierker Colonic tube and pad replacements. Repairs. Edmund F. Hanley, 101 No. Grand, St. Louis 6, Mo.

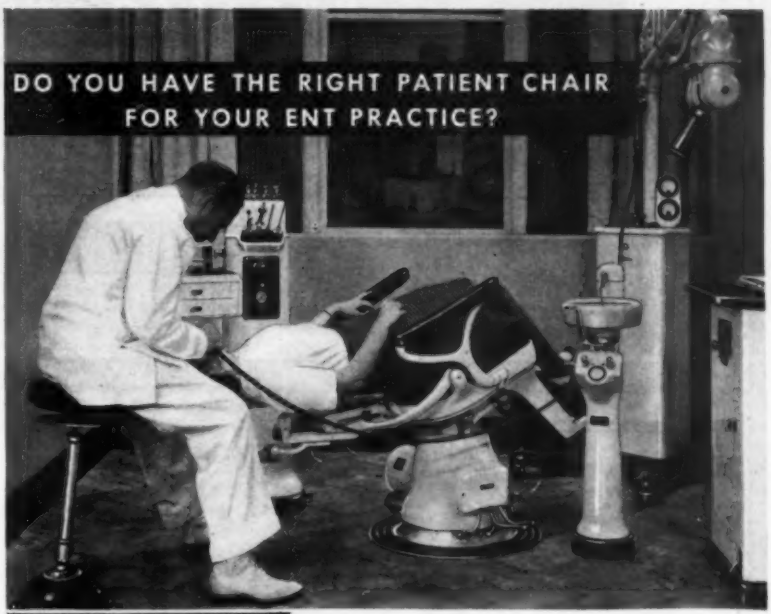
"PELVIC INFECTIONS"—Send for free clinical reprints and data, describing an important advancement in the treatment of pelvic infections. MAJESTIC, Dept. O—3816 W. Montrose Ave., Chicago 18, Illinois.

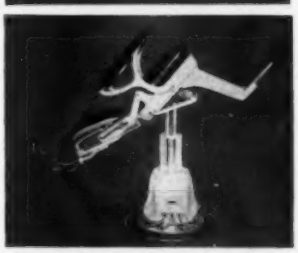
RADIOLOGIST WANTED: Certified or one who will be able to certify for a 35-bed hospital in middle west. Salary open. Address Box 1073, THE JOURNAL.

WANTED: Radiologist, certified preferred, but not imperative. Exceptional opportunity in Middle West for one interested in building for the future. Write full particulars with complete qualifications. Box 377, THE JOURNAL.

RESECTOSCOPE FOR SALE: One 28 Fr. Foroblique Stern-McCarthy Resectoscope —68 A Convertible. Panendoscopes: 18, 24, 26 Fr. Telescope to fit. Will sell the above for $375.00. Box 1272, THE JOURNAL.

WILL SELL my Spinalator, A-1 condition, or trade for late model Dierker Colonic. Dr. H. M. Ashby, Manhattan Bldg., Muskogee, Oklahoma.





When you want the patient's head lowered for special sinus treatment, your Ritter Motor Chair gives her complete support in relaxed comfort. The head rest locks rigidly.

For operations in the upright position, you appreciate other special advantages of the Ritter Chair. The head rest holds the patient's head firmly at the right angle—no slipping at a critical moment. The patient feels at ease in the soft, wide seat of the chair, feet comfortably resting on the platform. You can raise or lower the patient instantly to desired height—no awkward stretching and bending to tire your back.

Prepare now for your growing practice. Give your skill the modern equipment it deserves. *Ritter Co., Inc., Ritter Park, Rochester 3, N. Y.*

For Advanced Equipment *Look to* **Ritter**

NUCARPON Reg. U. S. Pat. Off.

For Anti-Flatulent Effects in Intestinal Putrefaction and Fermentation

Each tablet contains: Extract of Rhubarb, Senna, Precipitated Sulfur, Peppermint Oil and Fennel Oil, in a high activated willow charcoal base.

Action and uses: Mild laxative, adsorbent and carminative. For use in indigestion, hyperacidity, bloating and flatulence.

1 or 2 tablets daily ½ hour after meals. Bottles of 100.

STANDARD PHARMACEUTICAL CO., INC., 1123 Broadway, New York

BORCHERDT MALT SOUP EXTRACT EST. 1868

for Constipated Babies

Borcherdt's Malt Soup Extract is a laxative modifier of milk. One or two teaspoonfuls in a single feeding produce a marked change in the stool. Council Accepted. Send for sample.

BORCHERDT MALT EXTRACT COMPANY, 217 N. Wolcott Ave., Chicago 12, Ill.

***A Common Cause of* STROKES**

(Cerebral and retinal hemorrhages) may be

CAPILLARY FRAGILITY—DIATHESIS OF CAPILLARY VESSELS

RUTIN+C { The Vitamin P Factor from Buckwheat Increases Capillary Resistance

Promises to Be the Greatest Discovery of the Decade

Ask for clinical reports and Gothlin Index Technique for measuring Capillary fragility using a simple blood pressure cuff. Request our monthly therapeutic Review.

SCHIFF BIO-FOOD PRODUCTS

DETROIT 6, MICH. **Box 98, Linwood Station—Dept. A.O.**

PAY
1947-48 DUES
IMMEDIATELY
to insure
Membership listing
in
1948 DIRECTORY

. . . to relieve the strain of

CHRONIC IRREGULARITY

WHEN aberrations of the menses suggest that normal function has overstepped the bounds of physiologic limits—the physician is often confronted with a condition which proves highly distressing to the patient. For such cases (as in amenorrhea, dysmenorrhea, menorrhagia and metrorrhagia), many physicians rely on Ergoapiol (Smith) with Savin as the product of choice. By its unique inclusion of all the alkaloids of ergot (prepared by hydroalcoholic extraction), and the presence of apiol and oil of savin—Ergoapiol (Smith) with Savin provides a balanced and sustained tonic action on the uterus, affording welcome relief in many functional catamenial disturbances. It produces a desirable hyperemia of the pelvic organs, stimulates smooth, rhythmic uterine contractions, and also serves as an efficient hemostatic and oxytocic agent. General dosage: 1 to 2 capsules 3 to 4 times daily.

Write for your copy of the new 20-page brochure: "Menstrual Disorders—Their Significance and Symptomatic Treatment"

Supplied only in ethical packages of 20 capsules.

ERGOAPIOL (Smith) *with* SAVIN

MARTIN H. SMITH COMPANY • 150 LAFAYETTE ST., NEW YORK 13

Ethical protective mark, "MHS" visible when capsule is cut in half or more.

Alkalol

the Hypotonic Mucus Solvent

Alkalol is *scientifically balanced* to SOOTHE the delicate mucous membranes of the eye, nose and throat and other inflamed or irritated tissues. This HYPOTONIC alkaline, saline solution contains no glycerine and only a *trace* of alcohol.

Write today for facts folder and sample.

THE ALKALOL COMPANY

Taunton 23, Massachusetts

Also Producers of
Ethically Promoted Irrigol

CASE HISTORY BLANKS

Please specify whether Standard or Official.

☐ Standard — Size 8½ x 11 Ruled paper, punched for binder.

☐ Official — Size 8½ x 11 — Folded to fit box file.

Price $2.00 per 100, postpaid

A.O.A., 139 N. Clark St., Chicago 2, Ill.

SPOT-QUARTZ

ultra-violet lamp with WOOD'S FILTER gives you one compact unit for TWO PURPOSE OPERATION!

1. Permits quick, effective application through intense localized ultra-violet radiation—without danger of blistering.
2. Accurate fluorescent diagnosis for detection of many fungus infections, cutaneous lesions and circulatory disturbances.

Ideally suited for double-duty in everyday office procedure—for speed and ease of operation in 55 proven technics!

Moderately-priced Birtcher-built for professional efficiency.

THE BIRTCHER CORPORATION

To: The BIRTCHER Corporation,
5087 Huntington Dr.
Los Angeles 32, Calif. Dept. CX-12-7
Please send free booklets, "Compendium on Ultra-Violet" and "Fluorescent Diagnosis."

Name.....

Street.....

City..... State.....

Announcing The New Improved Antacid-Adsorbent Package

A DEPENDABLE AID FOR THE RELIEF OF GASTRIC HYPERACIDITY AND CONSTIPATION
Esscolloid
TRADE MARK
ANTACID-ADSORBENT
Esscolloid
ANTACID-ADSORBENT
Magnesium Trisilicate dispersed in the jelly-forming portion of blond psyllium (plantago ovata).
A soothing and effective combination for the relief of gastric hyperacidity and constipation.

At the first sign of constipation, colitis or peptic ulceration

℞ *Esscolloid Antacid-Adsorbent oz. xii.*
Sig.: 1 teaspoonful twice daily as directed.

Smooth lubricant bulk to correct stubborn constipation. Effective colloidal adsorption to neutralize hyperacidity and allay gastro-intestinal irritation. A natural physiologic aid free from laxative drug action.

The ESSCOLLOID Co. Inc.

1620 Harmon Place
Minneapolis 3, Minn.

145 West 57th Street
New York 19, New York

THE ESSCOLLOID CO., Inc.
1620 Harmon Place
Minneapolis 3, Minn.

Please mail me literature and details of your introductory offer

NAME.....

ADDRESS.....

CITY..... STATE.....

CALIFORNIA

Dr. Cecil D. Underwood
Practice limited to
DERMATOLOGY
&
SYPHILOLOGY
416 West 8th Street
Los Angeles, California

LEE R. BORG
D.O. F.A.O.C.Pr.
Certified by the A.O.B.P.
Proctology
1130 West Santa Barbara Avenue
Los Angeles, California
AXminster 7149

MERRILL SANITARIUM
(Neuropsychiatric)
Established in 1923
4600 Centinela Boulevard
Venice, California
a suburb of
LOS ANGELES

Drs. Edward B. Jones,
Forest J. Grunigen
and
Robert F. McBratney
609 So. Grand Ave.
Los Angeles, Calif.
Practice limited to
Urology

Complete Psychiatric Service
THOMAS J. MEYERS
M.A., D.O., F.A.C.N.
FULL facilities for the OSTEOPATHIC care of the insanities, addictions, neuroses, deficiencies, epilepsies, migraines and all other psychiatric problems.
234 E. Colorado St., Pasadena, Calif.

OSTEOPATHY—
WHAT IT IS NOT AND WHAT IT IS
24-page brochure which clarifies many points.
$5.00 per 100
ORDER FROM A.O.A.

APPLICATIONS FOR MEMBERSHIP

California

Perske, Fred J., (Renewal) 315 E. Main St., Alhambra
Kerner, Sidney, (Renewal) 105 N. San Vicente Blvd., Beverly Hills
Arnold, Robert M., (Renewal) 4525 S. Broadway, Los Angeles 37
Canfield, Charles B., (Renewal) 7340 Reseda Blvd., Reseda
Musicer, Morris H., (Renewal) 2619 Santa Ana, South Gate

Colorado

Sedar, Robert S., 2213 Downing St., Denver 5

Iowa

Chappell, Walter C., (Renewal) 232 Crescent Drive, Mason City

Kansas

Harbaugh, David D., (Renewal) 12 I.O.O.F. Bldg., Coffeyville
Eoff, F. M., (Renewal) 317-19 Hickory St., Ottawa

Kentucky

Waldemayer, Ennis W., (Renewal) 110 Hartweg Ave., Fort Thomas

Maine

Varnum, Alden C., (Renewal) Ashland
Gray, George C., East Corinth

Maryland

Rye, John K., 108 E. Glenbrook Road, Bethesda 14

Michigan

Meehan, Jack W., (Renewal) 676 Capital Ave., S. W., Battle Creek
Spore, E. Harold, (Renewal) 409 The Inn, Battle Creek
Heck, Willard D., (Renewal) 16525 Woodward Ave., Detroit 3, Mich.
Taggart, Harold L., (Renewal) 1321 Broadway, Flint 6
Ellis, Carl W., 70 E. Chicago Ave., Quincy

Missouri

Cockerell, A. Hugh, (Renewal) 138 N. Van Brunt Blvd., Kansas City 1
Fairfield, Cora Edith, (Renewal) 3908 Baltimore Ave., Kansas City 2
Souders, Frank E., 902 S. Baltimore St., Kirksville
Saunders, Robert G., (Renewal) 217 W. Commercial St., Lebanon

New Jersey

Gordon, Norman M., (Renewal) 1521 Baird Ave., Camden
Herrmann, Charles A., (Renewal) 433 Linden Ave., Elizabeth 2

New Mexico

Stryjewski, C. A., (Renewal) 307 W. Quay, Artesia

North Carolina

Miller, James J. W., Engelhard

Ohio

White, Edwin C., (Renewal) 213-15 Citizens Natl. Bank Bldg., Zanesville

Oklahoma

Johnson, Bernard O., (Renewal) 616 S. Main St., Tulsa 3
Unverferth, E. C., (Renewal) 506 Palace Bldg., Tulsa 3

Oregon

Brooke, Burnham, (Renewal) Portland Osteopathic Hospital, 616 N.W. 18th Ave., Portland 9

Pennsylvania

Lewis, Robert R., (Renewal) 1017 Bridge St., Philadelphia 24

CALIFORNIA

Munish Feinberg, D.O.
CARDIOLOGY
Los Angeles,
California

COLORADO

Dr. Philip A. Witt
Division of Urology and Surgery
of the Rocky Mountain Clinic
1550 Lincoln Denver

DISTRICT OF COLUMBIA

Dr. Chester D. Swope
Osteopathic Physician
The Farragut Apts.
Washington, D. C.

FLORIDA

Clement King Heberle, D.O.
ARTHRITIS
Osceola Sanatorium & Hotel
Daytona Beach, Florida

MASSACHUSETTS

VEITCH
EAR, NOSE, THROAT
BOSTON

OSTEOPATHY—
THE MODERN SCHOOL OF MEDICINE
32 pages, well illustrated
$6.00 per 100
ORDER FROM A.O.A.

MISSOURI

COLLIN BROOKE, D.O.
PROCTOLOGIST
F.A.O.C. PR.
210 Frisco Building
906 Olive St.
St. Louis 1

NEW JERSEY

BUTTON CLINIC
Complete Diagnostic Service
John C. Button, Jr., D.O.
15 Washington St., Newark 2, N. J.

NEW MEXICO

SANDIA OSTEOPATHIC CLINIC
M. C. Sims, D.O.
Jon M. Hagy, D.O.
E. M. Iverson, D.O.
2914 East Central Albuquerque

J. Paul Reynolds, D.O.
Roswell Osteopathic Clinic and Hospital
401 N. Lea
Roswell, N. Mex.

The New Mexico Osteopathic Hospital
Geo. C. Widney, D.O.
Geo. C. Widney, Jr., D.O.
Roderick K. Widney, D.O.
A. C. Bigsby, D.O.
Addison Hombs, D.O.
Albuquerque 1020 West Central

DON'T FORGET
TO SEND IN
YOUR CONTRIBUTION
to the
STUDENT LOAN FUND

HOSPITAL STUDY

demonstrates efficacy of
VAPO-CRESOLENE INHALATION
COUGH OF

BRONCHITIS 83% of cases relieved
WHOOPING COUGH 80% of cases relieved
SPASMODIC CROUP 100% of cases relieved
BRONCHIAL ASTHMA 76% of cases relieved

Vapo-Cresolene, inhaled, is mildly antiseptic, sedative and decongestive. Breathed during sleep, it soothes inflamed respiratory mucosa, promoting resolution and subsidence of cough.

Send for professional brochure

THE VAPO-CRESOLENE CO.
62 Cortlandt St. New York 7, N. Y.
Established 1879

Vapo-Cresolene

Rhode Island
Hilton, Spencer C., (Renewal) 933 Main St., Warren

Texas
Stevenson, Wayne M., (Renewal) Box 307, Kirbyville
Andersen, Lars O., (Renewal) Andersen Clinic & Hospital, Pilot Point
Hopkins, Eugene F., (Renewal) Rosenberg
Morgan, Tyra A., Gribble Hospital, Vidor

Washington
Clarke, Dwight D., (Renewal) 437 N. Maple St., Coville

Wisconsin
Harden, John M., (Renewal) Box 53, Monticello

Australia
Clymer, James W., (Renewal) 401 Collins St., C. 1, Melbourne, Victoria

NEW YORK

Dr. Thomas R. Thorburn
HOTEL BUCKINGHAM
101 W. 57th Street
New York City

OHIO

Bernard Abel, D.O.
Maxwell N. Greenhouse, D.O.
General Surgery
Pathological Obstetrics
336 West Woodruff Avenue
Toledo 2, Ohio

PENNSYLVANIA

DR. DAVID SHUMAN
Hypermobile Joints
34 E. Washington Lane
Philadelphia, Pa.

RHODE ISLAND

Dr. F. C. True
SURGEON
1141 Narragansett Blvd.
CRANSTON 5, R. I.
CHIEF SURGEON
R. I. OSTEOPATHIC HOSPITAL

FOREIGN

Dr. William J. Douglas
43 Avenue George V.
Tel. Balzac 13-98
Paris France

OSTEOPATHIC MAGAZINE
Makes an ideal Christmas Gift
Subscription Price
$1.25 Per Year

A product for

Oral Use

in

Nutritional Anemias

Made from whole liver substance

dehydrated at a *low temperature* so as to retain maximum enzyme, and vitamin values and *defatted* as well, so as to eliminate rancidity and other offensive factors of dehydrated fats.

in TWO products

No. 305—with high B-Complex and Iron.
No. 405—containing a half-gram of Liver with Iron only—no additional B-Complex added.

Physicians' Samples Upon Request

Professional Foods

219 First Street, S.W.
Cedar Rapids, Iowa

OSTEOPATHIC MAGAZINE ORDER BLANK

Revised Prices as of Sept. 1, 1947

QUANTITY PRICES

Delivered in Bulk to Your Office

	Annual Contract	Single Order
Under 200 copies	$8.50 per 100	$9.00 per 100
200 or more	7.50 per 100	8.00 per 100

Above rates do not include imprinting. See imprinting charges below.

Mail Direct to List—$1.75 per 100 extra if the magazines are not imprinted. $2.75 per 100 extra if imprinted (we must pay 1 cent additional postage on imprinted O.M.'s). These charges cover cost of addressing envelopes, inserting magazines, and postage only.

IMPRINT PLATE CHARGES	IMPRINTING
Original plate set-up on contract orders—free.	75 cents per 100 (minimum charge).
Change in set-up—$1.00 each time.	2% for cash on orders of 500 or more. Mailing envelopes free.
Original plate set-up on single orders—$1.00.	Shipping charges prepaid in United States and Canada.
Change in set-up—$1.00 each time.	

——————USE ORDER BLANK——————

American Osteopathic Association
139 N. Clark St., Chicago 2, Ill.

Date_____

Please send_____copies of OSTEOPATHIC MAGAZINE_____issue.

Check Service Wanted

☐ Contract (Start with above issue) ☐ Single order
☐ With professional card ☐ Deliver in bulk
☐ Without professional card ☐ Mail to list

Name_____

Address_____

City_____ State_____

Attach Copy for professional card to this order blank

"A Brief History of Osteopathy"

By RAY G. HULBURT, D.O.

A 24 page booklet. Completely revised and newly printed. Size 4¼"x7½".

Sample Copy 5 Cents
Price: $5.00 per 100

Mailing envelopes 50c per 100
(Mails unsealed for one cent)

Order from

AMERICAN OSTEOPATHIC ASSOCIATION
139 N. Clark St. Chicago 2, Ill.

PYROGAWZ

Efficacious
Medicated Gauze

WRITE FOR LEAFLET

R·J·STRASENBURGH Co.
PHARMACEUTICAL CHEMISTS SINCE 1886
ROCHESTER, NEW YORK

PROCARDIUM

An Effective Cardiac and Vasomotor Stimulant

For the Convalescent and Failing Heart

PROVIDES PROMPT RESPONSE!

In such conditions as heart failure, myocardial insufficiency, senile myocarditis, chronic passive congestion and weakness of heart musculature, PROCARDIUM provides the combined advantages of digitoxin, strychnine and strophanthin in a single enteric-coated tablet.

GRANT CHEMICAL COMPANY, Inc.
95 Madison Ave. • New York 16, N. Y.
Specialties for Diseases of the Heart and Blood Vessels

NEW!!!
COMBINATION ULTRA-VIOLET AND INFRA-RED LAMP

McIntosh #3388
Professional Type
Combined Ultra-Violet
and Infra-red Lamp
Only $44.95

The handy convenient McIntosh Biolite is now available with a most efficient Ultra-Violet bulb thus affording great utility. The inner bulb is made of special glass which filters out the destructive rays below 2800 angstroms leaving only the beneficial, biologic rays which promote assimilation of calcium and other minerals and the health giving Vitamin D. Produces 1st degree erythema in 5 min. at 24 inches.

This Ultra-Violet Lamp is guaranteed for 100 hours usage which makes the cost of 400—15 minute applications only 2½c each in addition to the electricity consumed. For use on alternating current only, 110-125 V. A.C., any cyclage.

The beautiful aluminum reflector, 11" in diameter, may be rotated to 350°; extension arm 20" long, ample to reach over table or bed; mounted on casters; rigid friction joints stay put; no sagging goose necks or loose screws. Height 70" overall. Heavy mogul socket 100% overload carrying capacity minimizes danger of an arc causing burned out connections. Infra-red burner, 450 watts, guaranteed for one year. Stainless steel shell does not chip or flake, hence no hot particles to fall on patient and no screen necessary.

Price of Ultra-violet Bulb separate to fit any #3610, or 3381 McIntosh Biolite $9.95

Price adapter unit to fit bulb to mogul socket of #3386 McIntosh Biolite $0.50

McIntosh #3406
Ultra-violet Bulb, Only $9.95

McIntosh Electrical Corporation
229-233 N. California Ave.
Chicago 12, Illinois

McIntosh
Elect. Corp.
Gentlemen:
Enclosed please find
check for $.....
Please send me f.o.b.
Chicago the following:
1 McIntosh #3388 Combination Ultra-violet and Infra-red Lamp—$44.95.
1 #3406 Ultra-violet Bulb only $9.95.
1 Adapter Unit for #3386—$0.50.
Kindly send me your new physical therapy catalogue.

Name .....
Address .....
City ..... Zone ..... State .....
A.O.A.

SYMPTOMATIC RELIEF

During the next few months, there will be an increase in affections of the Respiratory Tract.

Chest Colds	*Tonsilitis*	*Tracheitis*
Bronchitis	*Pneumonia*	*Pleurisy*

Many clinicians have recognized the value of externally applied moist heat in relieving the troublesome symptoms so often present in these conditions.

Cough	*Retrosternal Tightness*
Muscular and Pleuritic Pain	*Soreness of the Chest*

ANTIPHLOGISTINE as a medicated poultice offers a convenient, easy to apply method of getting moist heat to the affected area. It may be used with Chemo-therapy or other special medications.

ANTIPHLOGISTINE, due to its formula, maintains moist heat for many hours.

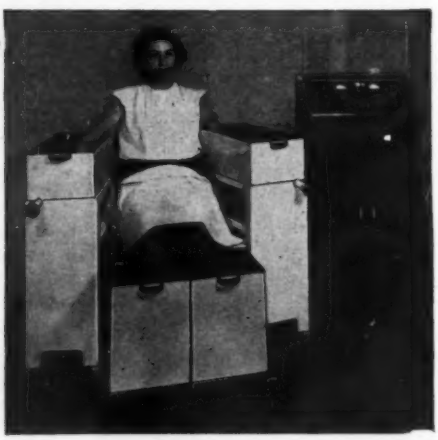
Antiphlogistine

Formula: Chemically pure Glycerine 45.000%, Iodine 0.01%, Boric Acid 0.1%, Salicylic Acid 0.02%, Oil of Wintergreen 0.002%, Oil of Peppermint 0.002%, Oil of Eucalyptus 0.002%, Kaolin Dehydrated 54.864%.

The Denver Chemical Mfg. Co., Inc., New York 13, N. Y.

A Definite Improvement

in **HYDROGALVANIC ★ THERAPY ★**



MODERN • EFFECTIVE • SAFE • CONVENIENT

For general muscular stimulation, acceleration of metabolism, and vasomotor stimulation.* A useful adjunct in the management of . . . Arthritis, Rheumatism, Neuritis, Sciatica, Peripheral Nerve Injuries, and allied conditions. Valuable in Functional Rehabilitation.

The New* TECA *Two Circuit Units

★ **TANK TREATMENTS,** ***with new tank arrangement.***

★ **FULL BATH TREATMENTS,** ***in any standard bathtub.***

FOR HOSPITAL AND OFFICE

*Kovacs, R.: Electrotherapy and Light Therapy, 1942, p. 153.

Write for Detailed Information

TECA CORPORATION 220 W. 42d STREET, NEW YORK 18, N. Y.

Distributors in Principal Cities

TECA

Advertisers Index

Alkalol Company....62
American Felsol Co....42
American Osteopathic Association....38, 62, 63, 66, 70
Arlington Chemical Co....32

Baybank Pharmaceutical Co....17, 41
Becton, Dickinson & Co....44
Birtcher Corporation....51, 63
Borcherdt Malt Extract Co....62
Borden Co....4
Bristol Laboratories....35
Bristol-Myers Co....19, 27
Burdick Corporation....56

Camel Cigarettes....10
Camp, S. H., and Company....29
Campbell Cereal Co....30
Can Mfrs. Inst....24
Cargille Scientific, Inc....57
Carnation Milk Products Co....22
Cereal Lactic Co....26
Chicago Dietetic Supply House, Inc....55
Ciba Pharmaceutical Products, Inc....5
Clark and Clark....Cover III
Classified Ads....61
Colwell Pub. Co....46
Commercial Solvents Corp....12

Dartell Laboratories....54
F. A. Davis Co....3
Denver Chemical Co....68
Diaphragm & Chemical Co....53
Doho Chemical Co....39
Dome Chemical Co....59

Esscolloid Co....63

Florida Citrus Commission....11
Foundation Products....7

Gerber Products Co....21
Gomco Surgical Mfg. Co....37
Grant Chemical Co., Inc....67

Huxley Pharmaceutical, Inc....54

Johnson & Johnson....16

Kelley Koett Mfg. Co., Inc....20
Knox Gelatine....38
Kruse, G., & Co....37

Lanteen Medical Laboratories, Inc....23
Larre Laboratories, Inc....53
Lea & Febiger....36
Leeming, Thos., & Co., Inc....48
Libby, McNeill and Libby....8

McIntosh Elec. Co....67
MacMillan Co....9
Medical Fabrics, Inc....69
Mellin's Food Company....36
Menley & James, Ltd....57
Mu-Col Company....59
Musterole Co....69

Novocol Chemical....50
Numotizine, Inc....55
Nutrition Research Laboratories....14, 15

Occy-Crystine Laboratory....58
Ortho Pharmaceutical Corp....Cover IV
Ottawa Arthritis Sanatorium and Diagnostic Clinic....34

Pelton & Crane Co....49
Physician's Drug & Supply Co....37
Picker X-Ray Corp....1
Professional Cards....64, 65
Professional Equipment Co....6
Professional Foods....66
Professional Printing Co., Inc....45

Reed & Carnrick....18
Reynolds, R. J., Tobacco Co....10
Ritter Co....61
Roerig, J. B., & Company....25

Saunders, W. B., Company....Cover I
Schiff Bio-Food Co....62
Schmid, Julius, Inc....33
Shield Laboratories....31
Smith, Martin H., Co....62
Spencer, Inc....43
Spinalator Co....52
Standard Pharmaceutical Co....62
Stearns, Frederick, and Co....13
Strasenburgh, R. J., Co....67

Tarbonis Company....40
Taylor Instrument Companies....60
Teca Corporation....68
Teckla Garment Co....56

U. S. Vitamin Corp....47

Vapo-Cresolene Co....65
Vitaminerals, Inc....28

Warner, Wm. R., & Co., Inc....Cover II

Young, F. E., & Co., Inc....58

Home therapy between office visits for

MUSCULAR ACHES-PAINS

Lumbago and Neuralgia Discomfort

Suggest massage with Musterole to your patients for adjunctive home treatment between professional visits.

Musterole is a tested and proven counter-irritant, analgesic and decongestive.

Massage with Musterole stimulates, increases superficial circulation and brings fresh blood to the affected parts for symptomatic relief. A clean white rub that will not stain the clothing.

IN 3 STRENGTHS: Children's Mild, Regular and Extra Strong.

MUSTEROLE

COMBINATION PRESSURE BANDAGE
"PRESSOPLAST"
(Elastic Adhesive)
REG. U. S. PAT. OFF.
plus
"CONTURA"
REG. U. S. PAT. OFF.

Indications:
Ulcers & Eczema of Leg • Phlebitis

COMPLIMENTARY
Upon request, we shall be pleased to send you the latest edition of our book "Technique and Indications of the Modern Combination Pressure Bandage."

DCM **MEDICAL FABRICS, Inc.**
10 Mill St., Paterson 1, N. J.

Osteopathic Magazine Visits Lone ★ State

The January issue of OSTEOPATHIC MAGAZINE is dedicated to the osteopathic physicians and the osteopathic profession in Texas. Patients of osteopathic physicians everywhere will enjoy reading this month's magazine which features the article, *Good Posture Is Important.*

Written for patients in clear, understandable language, this article explains the relation between posture and certain diseases and malfunctions. Further stressed are the roles which gravity and injuries, as well as bad habits of standing and sitting, play in poor posture. The value of having children examined periodically for posture faults is also covered.

Other articles of interest in the January issue of OSTEOPATHIC MAGAZINE are: *Ears, Nose, and Throat—Danger Zones, Texas Invites Young Doctors, What's Texas Got?,* and *Serving Future Citizens.*

Give your patients the news of osteopathy's advance. OSTEOPATHIC MAGAZINE is a friend of yours. It always speaks well of you.

● *Get your orders in early. Recent issues have been sold out and many late orders could not be filled.*

AMERICAN OSTEOPATHIC ASSOCIATION

139 N. Clark St., Chicago 2, Ill.

Improved...

for IMPROVED management of obesity

CLINICAL EFFICACY INCREASED
SIDE-REACTIONS DECREASED

Clinical experience of obesity specialists indicates that Clarkotabs Improved, containing the new amphetamine derivative Profetamine Phosphate*, provide greater efficacy in curbing excessive appetite . . . they afford more positive, more pleasant results in reduction of obesity . . . promote a marked feeling of well-being with greater freedom from undesirable side-reactions.

After extensive research and careful clinical evaluation, it appears that Profetamine Phosphate* (brand of racemic amphetamine phosphate), dose for dose, is the drug of choice when amphetamine action is indicated.

In the words of one investigator[1]: "... there have been absolutely no complaints as to untoward side-reactions, e.g., dryness of the mouth, nervousness, insomnia, constipation, vertigo, etc., as compared to other sympathomimetic preparations." Another authority[2] reports that "no untoward reactions were reported—except for a slight headache," and his studies indicate that the phosphate is approximately 50% more effective than the derivative of amphetamine most commonly used at present.

Supplied in sets of 300 and 3000 tablets

Samples and literature on request

CLARK & CLARK
MANUFACTURING CHEMISTS
Wenonah, New Jersey

* U. S. Patents Pending

References:
1. Trippe, M. F.: Personal communication 3/1/47.
2. Rosenberg, Phillip: Personal communication 2/4/47.

"Clarkotabs" and "Protetamine" are registered trade marks of Clark and Clark.

The most widely prescribed contraceptive preparation—Ortho-Gynol Vaginal Jelly—is now available in a compact set, complete with Diaphragm and Introducer.

The new Ortho-Gynol Set consists of (1) a tube of Ortho-Gynol Vaginal Jelly (or Ortho-Creme for those preferring the cream form)—together with (2) a high quality Ortho-Diaphragm (sizes 55 to 95), and (3) the new transparent plastic Ortho-Diaphragm Introducer.

Attractively packaged, the Ortho Set thus assembles all essentials for efficient, esthetic application whenever the control of conception appears desirable. Now stocked by all leading pharmacies for your prescriptions. *Active ingredients:* Ricinoleic acid 0.7%, boric acid 3.0%, and oxyquinoline sulfate 0.025%.

ORTHO

Ortho Pharmaceutical Corporation

RARITAN • NEW JERSEY

Makers of Gynecic Pharmaceuticals

COPYRIGHT 1947, ORTHO PHARMACEUTICAL CORP.